CITY OF TSHWANE
IGNITING EXCELLENCE

TENDER REFERENCE: CB105/2013

TENDER FOR THE PROVISIONING OF CONVERGED VOICE AND DATA INFRASTRUCTURE AND RELATED SUPPORT SERVICES: 1 YEAR PERIOD: WITH EFFECT FROM 01 OCTOBER 2013 OR NEAREST DATE

ISSUED BY:	**INITIATING DEPARTMENT:**
The Director **DEMAND** P O Box 48 PRETORIA 0001 Tel: (012) 358-0343	Group Information Communication Technology Department Corporate Infrastructure Management Division

Registered Name of Tenderer:

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PORTION 1: TENDER

PART T1: TENDERING PROCEDURES

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T1.1 TENDER NOTICE AND INVITATION TO TENDER

The following tenders are available (free of charge) on the internet (www.tshwane.gov.za) and can also be purchased at a non-refundable deposit of R60, 00 (including VAT) at the office mentioned below. (Only cash or bank-guaranteed cheques will be accepted.) The 90/10 preference point system will be applied to these tenders.

1. Tender for the once-off supply, delivery, installation of specified furniture for the office of the chief audit executive.
   (CB73/2013). Closing date: 18 June 2013 at 10:00.
   Queries: Rudzani Tshishonga/Obed Thenga, tel 012 358 3964

2. Tender for actuarial services for the IAS 19 report for 2013/2014 and 15 budget years.
   (CB84/2013). Closing date: 18 June 2013 at 13:30. Compulsory briefing: 31 May 2013 at 10:00 at 285 Francis Baard Street, Bothongo Plaza East Building, Boardroom No 1318, 13th Floor, Pretoria.
   Queries: Magdalene Siwela, tel 012 358 7538

3. Tender for the appointment of a consultant on access control capabilities for the City of Tshwane.
   (CB98/2013). Closing date: 19 June 2013 at 10:00.
   Queries: Cynthia Ramulifho, tel 012 358 3928

4. Tender for the supply, delivery and offloading of pipe repair clamps, as and when required: three-year period with effect from 1 July 2013 or the nearest date.
   (CB101/2013). Closing date: 19 June 2013 at 10:00.
   Queries: Enos Ramonoana, tel 012 358 0201.

5. Tender for the supply, delivery and offloading of tamperproof value hydrant KPA 2, as and when required: three-year period with effect from 1 December 2013 or the nearest date.
   CB102/2013). Closing date: 19 June 2013 at 13:30.
   Queries: Enos Ramonoana, tel 012 358 0201.

6. Request proposal from Service Provider is in the voice and data switching equipment, technology field to submit tenders to Council to continue providing the same voice and data technology on which Council has standardized, to ensure the integrity and safety of the current deployed infrastructure network, and to expand the current network to the 100 odd sites not yet networked.
   (CB105/2013). Closing date: 20 June 2013 at 10:00. Compulsory briefing: 29 May 2013 at 10:00 at Premos Auditorium
   Queries: Tshepo Bokaba, tel 012 358 3635.

7. Tender for the general repairs of the City of Tshwane's pick-up's, sedans, kombis, minibus and panel vans, for a one-year period, annually renewable to a maximum period of three years, commencing on the date indicated in the Letter of Acceptance, as and when required:
   (CB112/2013) Closing date: 20 June 2013 at 10:00.
   Queries: Karabo Morake, tel 012 358 0843.

8. Tender for the general repairs of the City of Tshwane's Commercial Vehicles, for a one-year period, annually renewable to a maximum period of three years, commencing on the date indicated in the Letter of Acceptance, as and when required:
   (CB114/2013). Closing date: 20 June 2013 at 10:00.
   Queries: Karabo Morake, tel 012 358 0843.

The following tender is not available on the internet (www.tshwane.gov.za) but can be purchased at a non-refundable deposit of R620,00 (including VAT) at the office mentioned below. (Only cash or bank-guaranteed cheques will be accepted.) The 90/10 preference point system will be applied to the tender.

9. Tender for the supply, delivery, installation, testing and commissioning of optical ground wire.
   (CB97/2013). CIDB 6EE or higher. Closing date: 24 June 2013 at 10:00. Compulsory session: 28 May 2013 at 10:00, offices of Electronic Services, Riviera.
   Queries: James Masonganye, tel 012 358 5745.

Tenders will be received on/at the closing dates and times shown, must be enclosed in separate sealed envelopes bearing the applicable tender heading and reference number, as well as the closing time and due date, must be addressed to the Executive Director, Supply Chain Management, Pretoria, 0001, and must be placed in the tender box situated at the Procurement Advice Centre at the entrance of C de Wet Centre, 175 Es'kia Mphahlele Drive, Pretoria West. Tenders will be opened at this address at the time indicated.

The specifications and tender forms will be obtainable during normal office hours (Mondays to Fridays from 07:45 till 15:15) from the Executive Director at the above address on receipt of a non-refundable deposit as indicated above. Only cash or bank-guaranteed cheques will be accepted. Tenders will be evaluated on the basis of points awarded for price and BBBEE status level of contribution. The lowest or any tender will not necessarily be accepted, and the Municipality reserves the right to accept a tender as a whole or in part. Tenders must remain valid for a period of 180 days after the closing date.

Enquiries: 012 358 0343
Mr J Ngobeni
CITY MANAGER

Notice 17 of 2013,
17 May 2013

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annexure F of SANS 294: 2000, bound into Section T1.3

The Standard Conditions of Tender makes several references to the Tender Data. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender to which it mainly applies.

Reference to relevant clauses in Standard Conditions of Tender		**Addition or Variation to Standard Condition of Tender**
F.1.1	Actions	The Employer is **THE CITY OF TSHWANE**. The term "bid" in the context of this standard is synonymous with term "'tender".
F.1.2	Tender documents	Tender Document This document in which are bound the Tendering Procedures, Returnable Documents, Agreements and Contract Data, Pricing Data, Scope of Work, Site Information and Additional Documents. ***Tenderers are reminded that irrespective of any other provision or requirement contained in this tender, the only mandatory required documents to be submitted with this tender are listed in Part T2 of the Returnable Documents***
F.1.3	Interpretation	
Add the following new clause: "F.1.3.4		The Tender documents have been drafted in English. The contract arising from the invitation of tender shall be interpreted and construed in English."
F.1.4	Communication and Employer's Agent	Agent: Director: Group Information Communication Technology Department Tel: 012 358-4250 Fax: 086 225-4133 E-mail address: abelmos@tshwane.gov.za
F.1.5 F1.5.2	The employer's right to accept or reject any tender offer	**Replace** the contents of the clause with the following: The employer may subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
		substantially the same scope of work
Add the following new clause: "F.1.6.2.1	Evaluation and award of tender	The City of Tshwane reserves the right to accept the whole or any portion of a tender.
F.2.2	Cost of tendering	**Add the following** to the clause: "Accept that the Employer will not compensate the tenderer for any costs incurred in attending interviews in the office of the Employer or the Employer's Agent."
F.2.7	Site visit and clarification meeting	Where applicable, details of the **compulsory** clarification meeting with a representative of the Employer are stated in the Tender Notice and Invitation to Tender. Confirmation of attendance will be recorded in the attendance register to be signed by all tenderers. Tender documents will not be made available at the clarification meeting.
F.2.8	Seek clarification	**Replace** the contents of the clause with the following: "Request clarification of the tender documents, if necessary, by notifying the Employer's Official or the Employer's Agent indicated in the Tender Notice and Invitation to Tender in writing at least seven working days before the closing time stated in the foregoing notice and clause F.2.15."
F.2.9	Insurance	**Add the following** to the clause: "Accept that the submission of a Tender shall be construed as an acknowledgement by the Tenderer that he is satisfied with the insurance cover, the Employer will affect under the contract."
F.2.10.5	Pricing the tender offer	**Add the following** to the clause: "If no offer is made for an item, a line must be drawn through the space in pen. All prices and details must be legible/readable to ensure the tender will be considered for adjudication."
F.2.11	Alterations to documents	**Add the following** to the clause*:* "In the event of a mistake having been made on the price schedule, it shall be crossed out in ink and be

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
		accompanied by an initial at each and every price alteration." If correction fluid has been used on any specific item price, such item will not be considered. Corrections in terms of price may not be made by means of correction fluid such as Tippex or similar product. ***No correction fluid may be used*** in a Price Schedule where prices are calculated to arrive at a total amount. If correction fluid has been used, the tender as a whole will not be considered. The Municipality will reject the bid if corrections are not made in accordance with the above."
F.2.13	Submitting a Tender Offer	
F.2.13.2		Each Tenderer is required to return the complete set of documents as listed in Part T2 with all the required information supplied and completed in all respects. Prior to submitting their tender document tenderers should make a copy thereof for record purposes No copies of any part of the submitted tender document will be made for the tenderers during the evaluation and adjudication processes.
F.2.13.4		**Add the following** to the clause: "Only authorised signatories may sign the original and all copies of the tender offer where required in terms of F.2.13.3 In the case of a **ONE-PERSON CONCERN** submitting a tender, this shall be clearly stated. In case of a **COMPANY** submitting a tender, include a copy of a **resolution by its board of directors** authorising a director or other official of the company to sign the documents on behalf of the company. In the case of a **CLOSE CORPORATION** submitting a tender, include a copy of a **resolution by its members** authorising a member or other official of the corporation to sign the documents on each member's behalf. In the case of a **PARTNERSHIP** submitting a tender, **all the partners** shall sign the documents, unless one partner or a group of partners has been authorised to sign on behalf of each partner, in which case **proof of such authorisation** shall be included in the Tender. In the case of a **JOINT VENTURE/CONSORTIUM** submitting a tender, include **a resolution** of each company of the Joint Venture together with a resolution by its members authorising a member of the Joint

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
		Venture to sign the documents on behalf of the Joint Venture." In cases where the Tenderer has not submitted proof of authorisation with the Tender, the Employer reserves the right to, at any time after the closure of the Tender, but before the award of the Tender, request the Tenderer to provide proof of authorisation within 7 (seven) calendar days from date of notification. **Accept that failure to submit proof of authorisation to sign the tender, shall result in a Tender Offer being regarded as non-responsive.**
F.2.13.5		The identification details are: •.....Correct tender reference no. •.....Correct Tender description •.....Correct closing time •.....Correct due date Each tender shall be enclosed in a sealed envelope, bearing the correct identification details and shall be placed in the tender box located at: **PROCUREMENT ADVICE CENTRE** **(TENDER BOX AT THE ENTRANCE OF C DE WET CENTRE)** **C DE WET CENTRE,** **175 E'SKIA MPHAHLELE DRIVE,** **PRETORIA WEST, 0183** This address is 24 hours available for delivery of Tender offers.
F.2.13.6		A two-envelope procedure will not be followed.
F.2.15 F.2.15.1	Closing time	Details of the closing time for submission of tender offers is stated in the Tender Notice and Invitation to tender

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
F.2.16 F.2.16.1	Tender Offer validity	The Tender Offer validity period is 180 days. **<u>Add the following</u>** to the clause: "If the tender validity expires on a Saturday, Sunday or public holiday, the Tender Offer shall remain valid and open for acceptance until the closure of business on the following working day."
F.2.17	Clarification of Tender Offer after Submission	**<u>Replace</u>** the contents of the clause with the following clause: "Provide clarification of a Tender Offer in response to a request to do so from the Employer during the evaluation of Tender Offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors resulting from the product of the unit rate and the quantity by the adjustment of certain line item totals. No change in the unit rate or prices or substance of the Tender Offer is sought, offered, or permitted. "
F.2.19	Inspections, tests and analysis	The Tenderer must provide access during working hours to his premises for inspections on request.
F.2.23	Certificates	Refer to part T2: Returnable Documents for a list of documents that are to be returned with the tender.
Add the following new clause: "F.2.24"	Canvassing and obtaining of additional information by tenderers	Accept that no Tenderer shall make any attempt either directly or indirectly to canvass any of the Employers officials or the Employer's agent in respect of his tender, after the opening of the tenders but prior to the Employer arriving at a decision thereon.

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
		No Tenderer shall make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of tenders."
Add the following new clause: "F.2.25"	Prohibitions on awards to persons in service of the state	Accept that the Employer is prohibited to award a tender to a person - a) who is in the service of the state; or b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or c) a person who is an advisor or consultant contracted with the municipality or municipal entity. **"In the service of the state"** means to be - a) a member of:- • any municipal council; • any provincial legislature; or • the National Assembly or the National Council of Provinces; b) a member of the board of directors of any municipal entity; c) an official of any municipality or municipal entity; d) an employee of any national or provincial department; e) provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999); f) a member of the accounting authority of any national or provincial public entity; or g) an employee of Parliament or a provincial legislature."

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
		In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in Section T2.2 must be completed.
Add the following new clause: "F.2.26"	Awards to close family members of persons in the service of the state	"Accept that the notes to the Employer's annual financial statements must disclose particulars of any award of more than R2000 to a person who is a spouse, child or parent of a person in the service of the state (defined in clause F.2.25), or has been in the service of the state in the previous twelve months, including
		a) the name of that person; b) the capacity in which that person is in the service of the state; and c) the amount of the award. In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 – Returnable Documents must be completed in full and signed."
Add the following new clause: "F.2.27"	Vendor Registration	Accept that each contractor is required to register as a supplier/ service provider on the City of Tshwane's vendor register before any payment can be done. Accept that if the Tenderer is already registered as a vendor, it is required to record the vendor number in space provided on the cover page of this Tender document.

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
		Vendor registration documents are available from the Procurement Advice Centre or can be downloaded from ***http://www.tshwane.gov.za/procurement.cfm*** Accept that all parties of a joint venture or consortium submitting a tender shall comply with the requirements of this clause"
Add the following new clause: "F.2.28"	Tax Clearance Certificate	In the case of a Joint Venture/Consortium the tax clearance certificate must be for the Joint Venture/Consortium or individual valid tax clearance certificates for all the members of the Joint Venture/Consortium."
F.3.1	Respond to clarification	**Replace** the contents of the clause with the following: "Respond to a request for clarification received up to seven calendar days before the tender closing time stated in the tender data and notify all Tenderers who drew procurement documents"
F.3.4 F.3.4.1	Opening of Tender submissions	The time and location for the tender submissions are stated in the Tender Notice and Invitation to Tender.
F.3.11	Evaluation of Tenders	**Replace** the contents of the clause with the following: In instances where assets are sold or leased, the award must be made to the highest bidder..
F.3.11.7	Scoring Financial Offers	**Replace** the contents of the clause with the following: In instances where assets are sold or leased, the award must be made to the highest bidder.

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
F.3.12	Insurance provided by the Employer	**Replace** the contents of the clause with the following: "If requested by any tenderer, submit for the tenderer's information the policies or certificates of insurance (or both) which the Conditions of Contract identified in the Contract Data require the Employer to provide."
F.3.13 F.3.13.1	Acceptance of Tender Offer	Tender offers will only be accepted if: a) the Tenderer is able to produce a valid Tax Clearance Certificate issued by the South African Revenue Service; b) the Tenderer is not in arrears for more than 3 months with municipal rates and taxes and municipal service charges; c) the Tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector, and d) the Tenderer has not: i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect. e) It is considered that the performance of the services will not be compromised through any conflict of interest.
F.3.18	Copies of Contract	One signed copy of contract shall be provided by the Employer to the successful Tenderer

T1.3 STANDARD CONDITIONS OF TENDER

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CIDB STANDARD CONDITIONS OF TENDER

(February 2008 edition)

As published in Annex F of the CIDB Standard for Uniformity in Construction Procurement in Board Notice 8 of 2008 in Government Gazette No 30692 of 1 February 2008

F.1 General

F.1.1 Actions

F.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

F.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict, and abstain from any decisions where such

Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result
2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

conflict exists or recues themselves from the procurement process, as appropriate.

F.1.1.3 The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

F.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

F.1.3 Interpretation

F.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

F.1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

F.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:
   i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;
   ii) an individual or organization is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or

iii) incompatibility or contradictory interests exist between an employee and the organization which employs that employee.

b) **comparative offer** means the tenderer's financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; and

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels

e) **organization** means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body

f) **quality (functionality)** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

F.1.4 Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

F.1.5 The employer's right to accept or reject any tender offer

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.1.6 Procurement procedures

F.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to F.3.13, be concluded with the tenderer who in terms of F.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

F.1.6.2 Competitive negotiation procedure

F.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of F.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of F.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

F.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of F.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

F.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

F.1.6.2.4 The contract shall be awarded in accordance with the provisions of F.3.11 and F.3.13 after tenderers have been requested to submit their best and final offer.

F.1.6.3 Proposal procedure using the two stage-system

F.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

F.1.6.3.2 Option 2

F.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

F.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

F.2 Tenderer's obligations

F.2.1 Eligibility

F.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

F.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

F.2.2 Cost of tendering

Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

F.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

F.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

F.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

F.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

F.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

F.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

F.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

F.2.10 Pricing the tender offer

F.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.

F.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

F.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

F.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

F.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

F.2.12 Alternative tender offers

F.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

F.2.12.2 Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

F.2.13 Submitting a tender offer

F.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

F.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

F.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

F.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

F.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked “financial proposal” and place the remaining returnable documents in an envelope marked “technical proposal”. Each envelope shall state on the outside the employer’s address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.

F.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

F.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

F.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

F.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

F.2.16 Tender offer validity

F.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

F.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period.

F.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer’s agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.

F.2.16.4 Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of F.2.13 with the packages clearly marked as “SUBSTITUTE”.

F.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

F.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

F.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

F.2.20 Submit securities, bonds, policies, etc.

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

F.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

F.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.

F.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

F.3 The employer's undertakings

F.3.1 Respond to requests from the tenderer

F.3.1.1 Respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

F.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

F.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until seven days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who drew documents.

F.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

F.3.4 Opening of tender submissions

F.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

F.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, preferences claimed and time for completion for the main tender offer only.

F.3.4.3 Make available the record outlined in F.3.4.2 to all interested persons upon request.

F.3.5 Two-envelope system

F.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

F.3.5.2 Evaluate the quality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the quality evaluation more than the minimum number of points for quality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

F.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

F.3.8 Test for responsiveness

F.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

a) complies with the requirements of these Conditions of Tender,
b) has been properly and fully completed and signed, and
c) is responsive to the other requirements of the tender documents.

F.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

F.3.9 Arithmetical errors, omissions and discrepancies

F.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

F.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

a) the gross misplacement of the decimal point in any unit rate;
b) omissions made in completing the pricing schedule or bills of quantities; or.
c) arithmetic errors in:
    i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
    ii) the summation of the prices.

F.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and invite the tenderer to either confirm the tender offer as tendered or accept the corrected total of prices.

F.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.

b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

F.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

F.3.11.2 Method 1:

Financial offer

In the case of a financial offer:

a) Rank tender offers from the most favourable to the least favourable comparative offer.
b) Recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.
c) Re-rank all tenderers should there be compelling and justifiable reasons not to recommend the highest ranked tenderer and recommend the highest ranked tenderer, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.3 Method 2:

Financial offer and preference

In the case of a financial offer and preferences:

a) Score each tender in respect of the financial offer made and preferences claimed, if any, in accordance with the provisions of F.3.11.7 and F.3.11.8.

b) Calculate the total number of tender evaluation points **(TEV)** in accordance with the following formula:

TEV = NFO + NP

where: **NFO** is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;

NP is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.

d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points, and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated

F.3.11.4 Method 3:

Financial offer and quality

In the case of a financial offer and quality:

a) Score each tender in respect of the financial offer made and the quality offered in accordance with the provisions of F.3.11.7 and F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.

b) Calculate the total number of tender evaluation points **(TEV)** in accordance with the following formula:
TEV = NFO + NQ

where: **NFO** is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
NQ is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.

d) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.5 Method 4:

Financial offer, quality and preferences

In the case of a financial offer, quality and preferences:

a) Score each tender in respect of the financial offer made, preference claimed, if any, and the quality offered in accordance with the provisions of F.3.11.7 to F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.

b) Calculate the total number of tender evaluation points **(TEV)** in accordance with the following formula:
TEV = NFO + NP + NQ

where: **NFO** is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
NP is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.
NQ is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

c) Rank tender offers from the highest number of tender evaluation points to the lowest. d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

d) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.6 Decimal places

Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.7 Scoring Financial Offers

Score the financial offers of remaining responsive tender offers using the following formula:

NFO = W1x A

where: **NFO** is the number of tender evaluation points awarded for the financial offer.
W1 is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data

A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

F.3.11.8 Scoring preferences

Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences. Calculate the total number of tender evaluation points for preferences claimed in accordance with the provisions of the tender data.

F.3.11.9 Scoring quality

Score each of the criteria and sub criteria for quality in accordance with the provisions of the Tender Data. Calculate the total number of tender evaluation points for quality using the following formula:

NQ = W2 x SO / MS

where: **SO** is the score for quality allocated to the submission under consideration;

MS is the maximum possible score for quality in respect of a submission, and
W2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data

F.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

F.3.13 Acceptance of tender offer

F.3.13.1 Accept the tender offer, if in the opinion of the employer, it does not present any unacceptable commercial risk and only if the tenderer:

a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
c) has the legal capacity to enter into the contract,

Table F.1: Formula for calculating the value of A

Formula	Comparison aimed at achieving	Option 1[a]	Option 2 [a]
1	Highest price or discount	$A = (1 + (\frac{P - Pm}{Pm}))$	A = P / Pm
2	Lowest price or percentage commission / fee	$A = (1 - (\frac{P - Pm}{Pm}))$	A = Pm / P

[a] P_m is the comparative offer of the most favourable comparative offer.
P is the comparative offer of the tender offer under consideration.

d) is not insolvent, in receivership, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
e) complies with the legal requirements, if any, stated in the tender data, and f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

F.3.13.2 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period. Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful tenderer as described in the form of offer and acceptance.

F.3.14 Notice to unsuccessful tenderers

After the successful tenderer has acknowledged the employer’s notice of acceptance, notify other tenderers that their tender offers have not been accepted.

F.3.15 Prepare contract documents

If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

a) addenda issued during the tender period,
b) inclusion of some of the returnable documents,
c) other revisions agreed between the employer and the successful tenderer, and
d) the schedule of deviations attached to the form of offer and acceptance, if any.

F.3.16 Issue final contract

Prepare and issue the final draft of the contract to the successful tenderer for acceptance as soon as possible after the date of the employer's signing of the form of offer and acceptance (including the schedule of deviations, if any).

F.3.17 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

F.3.18 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

F.3.19 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender, but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

PART T2: LIST OF RETURNABLE DOCUMENTS

CONTENTS

RD.A RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: ***Failure to fully complete and submit the applicable documents will result in the tender offer being disqualified from further consideration.***

Document Name	Reference	Confirmation of Document Included *(Tenderers may use this column to confirm documents have been completed and included in the tender)*
Form of Offer and Acceptance	Section C1.1	
Declaration of interest in tender of persons in service of state	Form RDA1	
Declaration of Tenderer's past supply chain management practises	Form RDA2	
As Required		
Copy/ies of Municipal Account/s of the tenderer and each Director/Member of the company or where applicable a copy of the lease agreement	-	

RD.C ADDITIONAL RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: ***Failure to submit the applicable document will result in the Tenderer having to submit same upon request within 7 days and if not complied with, will result to the tender offer being disqualified from further consideration [See also clause 2.18 of the Standard Conditions of Tender]***

Document Name	Reference	Confirmation of Document Included
Valid Tax Clearance Certificate	-	
Schedule of Tenderer's experience	Form RDC1	
Record of services provided to organs of state	Form RDC5	
Company information for tenders greater than R 10 million	Form RDC6	
Classification of Business	Form RDC7	
Certificate of Authority of Signatory	Form RDC8	
Status of concern submitting tender	Form RDC9	
Certificate of independent bid determination	Form RDC10	
As Required		

RD.E OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

Note: ***Failure to fully complete and submit the applicable documents will result in the tender offer being disqualified from further consideration.***

Document Name	Reference	Confirmation of Document Included
Form of offer and acceptance	Section C1.1	
Contract data (Part 2: Data provided by the Supplier)	Section C1.2	
Activity Schedules / Schedule of Quantities	Section C2	
Record of Addenda to Tender Documents	Form RDE1	
Proposed Amendments	Form RDE2	
As Required		
As Required		

FORM RDA 1
DECLARATION OF INTEREST IN TENDER OF PERSONS IN SERVICE OF STATE

THIS FORM MUST BE COMPLETED IN FULL AND SIGNED. FAILURE TO COMPLY WILL RESULT IN THE TENDER BEING DISQUALIFIED.

(Refer to Clauses 2.25 and 2.26 in the Tender Data)

1. Is the employer/owner of the bidder in the service of the state? ***YES / NO (INDICATE)***

If so, state particulars:

.....

2. If the provider is not a natural person, whether any of its directors, managers, principal shareholders or stakeholder is in the service of the state, or has been in the service of the state in the previous twelve months: ***YES / NO (INDICATE)***

If so, state particulars:

.....

3. Whether a spouse, child or parent of the provider or of a director, manager, shareholder or stakeholder referred to in subparagraph 2 is in the service of the state, or has been in the service of the state in the previous twelve months: ***YES / NO (INDICATE)***

If so, state particulars:

.....

4. Is an employer / owner of the bidder a person who is an advisor or consultant contracted with the municipality or municipal entity: ***YES / NO (INDICATE)***

If so, state particulars:

.....

5. Are the Tenderer or any of the members of the tendering entity involved in another entity for this particular tender: ***YES / NO (INDICATE)***

If so, state particulars:

.....

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDA 2

DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Municipal tender document must form part of all tenders invited.
2. It serves as a declaration to be used by Municipalities and Municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
3. The tender of any Tenderer may be rejected if that Tenderer, or any of its directors have:
   a. abused the Municipality's / Municipal entity's supply management system or committed any improper conduct I n relation to such system;
   b. been convicted for fraud or corruption during the past five years;
   c. wilfully neglected, reneged on or failed to comply with any government, Municipal or other public sector contract during the past five years; or
   d. been listed in the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004).
4. In order to give effect to the above, this form must be completed in full and signed. Failure to comply will result in the tender being disqualified. The following questionnaire must be completed and submitted with the tender:

ITEM	QUESTION	RESPONSE	
4.1	**Is the Tenderer or any of its directors listed on the National Treasurer's database as a company or persons prohibited from doing business with the public sector?** (Companies for persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied)	Yes	No
	If so, furnish particulars:		
4.2	**Is the Tenderer or any of its directors listed on the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004)?** (To access this Register enter the National Treasury's website, www.treasury.gov.za , click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number 012-326-5445)	Yes	No
	If so, furnish particulars:		
4.3	**Was the Tenderer or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?**	Yes	No
	If so, furnish particulars:		

4.4	**Was any contract between the Tenderer and the Municipality / Municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?**	Yes	No
	If so, furnish particulars:		
4.5	**Does the tenderer or any of its directors owe any Municipal rates and taxes or Municipal charges to the Municipality/Municipal entity, or to any other Municipality/Municipal entity, that is in arrears for more than three months?**	Yes	No
	If so, furnish particulars:		

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

FORM RDC 1
SCHEDULE OF TENDERER'S EXPERIENCE

The following is a statement of similar work successfully executed by myself / ourselves:

EMPLOYER, CONTACT PERSON AND TELEPHONE NUMBER.	DESCRIPTION OF CONTRACT	VALUE OF WORK INCLUSIVE OF VAT (RAND)	DATE COMPLETED
1._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
2._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
3._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
4._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
5._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____

FORM RDC 2

SCHEDULE OF PROPOSED SUBCONTRACTORS

You the client are hereby notified that it is our intention to employ the following Subcontractors for work in this contract.

If we are awarded a contract we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

	NAME AND ADDRESS OF PROPOSED SUBCONTRACTOR	NATURE AND EXTENT OF WORK
1.		
2.		
3.		
4.		
5.		

FORM RDC 5

RECORD OF SERVICES PROVIDED TO ORGANS OF STATE

Tenderers are required to complete this record in terms of the Supply Chain Management Regulations issued in terms of the Municipal Finance Management Act of 2003.

Include only those contracts where the tenderer identified in the signature block below was directly contracted by the Employer. Tenderers must not include services provided in terms of a sub-contract agreement.

Where contracts were awarded in the name of a joint venture and the tenderer formed part of that joint venture, indicate in the column entitled "Title of the contract for the service" that the contract was in joint venture and provide the name of the joint venture that contracted with the employer. In the column for the value of the contract for the service, record the value of the portion of the contract performed (or to be performed) by the tender.

Complete the record or attach the required information in the prescribed tabulation.

All services commenced or completed to an organ of state in the last five years

#	Organ of state, i.e. national or provincial department, public entity, municipality or municipal entity.	Title of contract for the service	Value of contract for service incl. VAT (Rand)	Date completed (State current if not yet completed)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Attach additional pages if more space is required.

FORM RDC 6

COMPANY INFORMATION FOR TENDERS GREATER THAN R10 MILLION

1. The tenderer is required by law to prepare annual financial statements for auditing and is therefore requested to provide audited annual financial statements:
   - for the past three years; or
   - since their establishment if established during the past three years.

   Indicate whether these have been included in the tender: ***YES / NO***

2. Does the tenderer have any undisputed commitments for Municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days? ***YES / NO***

   If so, state particulars

   .....

3. Has any contracts been awarded to the tenderer by an organ of state during the past five year?

   YES / NO

   If so, state particulars

   .....

4. Has there been any material non-compliance or dispute concerning the execution of such contract? ***YES / NO***

   If so, state particulars

   .....

5. Is any portion of the goods or services expected to be sourced out from outside the Republic?

   YES / NO

   If so, state what portion and whether any portion of payment from the Municipality is expected to be transferred out of the Republic.

   .....

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDC 7

CLASSIFICATION OF BUSINESS

1. THE SMALL BUSINESSES ARE DEFINED IN THE NATIONAL SMALL BUSINESS ACT, 1996 (ACT 102 OF 1996).

2. INFORMATION FURNISHED WITH REGARD TO THE CLASSIFICATION OF THE SMALL BUSINESSES

a. **Indicate** whether the company/entity is defined as a **small, medium or micro** enterprise by the National Small Business Act, 1996 (Act 102 of 1996). ***YES / NO***

b. If the response to paragraph is **YES**, the following must be completed:

i. Sector/sub-sector in accordance with the Standard Industrial classification

.....

ii. Size or class

.....

iii. Total full-time equivalent of paid employees

.....

iv. Total annual turnover

.....

v. Total gross asset value (fixed property excluded)

.....

(A schedule indicating the different sectors is attached to this form.)

The tenderer should substantiate the information provided above by submitting the following documentation:

c. A letter from the tenderer's auditor or an affidavit from the South African Police Services confirming the correctness of the abovementioned information,

d. Company profile indicating the tenderer's staff compliment, and

e. 3 year financial statement or since their establishment if established during the past 3 years.

''SCHEDULE"

(See definition of 'small businesses' in section)

SIZE OF CLASS	THE TOTAL FULL-TIME EQUIVALENT OF PAID EMPLOYEES	TOTAL TURNOVER	TOTAL GROSS ASSET VALUE (FICED PROPERTY EXCLUDED)
ARGRICULTURE			
Medium	100	R 5 mil	R 5 mil
Small	50	R 3 mil	R 3 mil
Very Small	10	R 500 000	R 500 000
Micro	5	R 200 000	R 100 000
MINING AND QUARRYING			
Medium	200	R 39 mil	R 23 mil
Small	50	R 10 mil	R 6 mil
Very Small	20	R 4 mil	R 2 mil
Micro	5	R 200 000	R 100 000
MANUFACTURING			
Medium	200	R 51 mil	R 19 mil
Small	50	R 13 mil	R 5 mil
Very Small	20	R 5 mil	R 2 mil
Micro	5	R 200 000	R 100 000
ELECTRICITY, GAS & WATER			
Medium	200	R 51 mil	R 19 mil
Small	50	R 13 mil	R 5 mil
Very Small	20	R 5.1 mil	R 1.9 mil
Micro	5	R 200 000	R 100 000
CONSTRUCTION			
Medium	200	R 26 mil	R 5 mil
Small	50	R 6 mil	R 1 mil
Very Small	20	R 3	R 500 000
Micro	5	R 200 000	R 100 000
RETAIL AND MOTOR TRADE & REPAIR SERVICES			
Medium	200	R 39 mil	R 6 mil
Small	50	R 19 mil	R 3 mil
Very Small	20	R 4 mil	R 600 000
Micro	5	R 200 000	R 100 000
WHOLESALE TRADE, COMMERCIAL AGENTS AND ALLIED SERVICES			
Medium	200	R 64 mil	R 10 mil
Small	50	R 32 mil	R 5 mil
Very Small	20	R 6 mil	R 600 000
Micro	5	R 200 000	R 100 000
CATERING, ACCOMODATION AND OTHER TRADE			
Medium	200	R 13 mil	R 3 mil
Small	50	R 6 mil	R 1 mil
Very Small	20	R 5.1 mil	R 1.9 mil
Micro	5	R 200 000	R 100 000
TRANSPORT, STORAGE & COMMUNICATIONS			
Medium	200	R 26 mil	R 6 mil
Small	50	R 13 mil	R 3 mil
Very Small	20	R 3 mil	R 600 000
Micro	5	R 200 000	R 100 000
FINANCE & BUSINESS SERVICES			
Medium	200	R 26 mil	R 5 mil
Small	50	R 13 mil	R 3 mil
Very Small	20	R 3 mil	R 500 000
Micro	5	R 200 000	R 100 000
COMMUNITY, SOCIAL AND PERSONAL SERVICES			
Medium	200	R 13 mil	R 6 mil
Small	50	R 6 mil	R 3 mil
Very Small	20	R 1mil	R 600 000
Micro	5	R 200 000	R 100 000

FORM RDC 8

CERTIFICATE OF AUTHORITY OF SIGNATORY

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

.....

.....

(Legally correct full name and registration number, if applicable, of the Enterprise)

Held at ..... (place)

On ..... (date)

RESOLVED that:

1. The Enterprise submits a Bid / Tender to the City of Tshwane in respect of the following project:

   .....

   .....

   (Project description as per Bid / Tender Document)

   Bid / Tender Number: ..... (Bid/Tender No as per Bid/Tender Document)

2. Mr/Mrs/Ms: .....

   In *his/her capacity as: ..... (Position in the Enterprise)

   And who will sign as follows: .....

   be, and is hereby, authorised to sign the Bid/Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid/Tender to the Enterprise mentioned above.

	NAME	CAPACITY	SIGNATURE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

NOTE:
1. *Delete which is not applicable
2. NB: This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise
3. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

ENTERPRISE STAMP

CERTIFICATE OF AUTHORITY FOR JOINT VENTURES AND CONSORTIA

This Returnable Schedule is to be completed by joint ventures.
(Attach additional pages if more space is required.)

We, the undersigned, are submitting this tender offer in a Joint Venture / Consortium and hereby authorise Mr/Ms_____ , authorised signatory of the company _____ acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

Registered Name Of Firm	Reg. Number	% Of Contract Value	Address	Duly Authorized Signatory	Mark (x) Lead Partner

FORM RDC 9

STATUS OF CONCERN SUBMITTING TENDER

1. General

State whether the tenderer is a company, a closed corporation, a partnership, a sole practitioner or a joint venture:

(Mark the appropriate option below)

Public Company	
Private Company	
Closed Corporation	
Partnership	
Sole Proprietary	
Joint Venture	
Co-operative	

2. Information To Be Provided

	If the Tendering Entity is a:	Documentation to be submitted with the tender
1	Close Corporation, incorporated under the Close Corporation Act,1984, Act 69 of 1984	CIPRO CK1 or CK2 (Copies of the founding statement) and list of members.
2	Private Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973 (including Companies incorporated under Art 53 (b))	Copies of: a) CIPRO CM 1 - Certificate of Incorporation b) CIPRO CM 29 – Contents of Register of Directors, Auditors and Officers c) Shareholders Certificates of all Members of the Company.
3	Private Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973 in which any, or all, shares are held by another Close Corporation or company with, or without, share capital.	Copies of documents referred to in 1 and/or 2 above in respect of all such Closed Corporations and/or Companies.
4	Public Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973 (including Companies incorporated under Art 21).	A signed statement of the Company's Secretary confirming that the Company is a public Company. Copy of CM 29.
5	Sole Proprietary or a Partnership	Copy of the Identity Document of: a) such Sole Proprietary, or b) Each of the Partners in the Partnership Copy of the Partnership agreement.

If the Tendering Entity is a:		Documentation to be submitted with the tender
6	Co-operative	CIPRO CR2 - Copies of Company registration document. (The percentage of work to be done by each partner must clearly be indicated on Form RDB1 (or RDB2 as applicable) of the tender document: MBD6.1 Preference Points Claim Form in terms of the Preferential Procurement Regulations 2001).
7	Joint Venture	All the documents (as described above) as applicable to each partner in the JV as well as a copy of the Joint Venture agreement. (The percentage of work to be done by each partner of the joint venture must clearly be indicated in the Joint Venture Agreement).

Note:

1.) If the shares are held in trust provide a copy of the Deed of Trust (only the front page and pages listing the trustees and beneficiaries are required) as well as the Letter of Authority as issued by the Master of the Supreme Court, wherein trustees have been duly appointed and authorised, must be provided.

2.) Include a copy of the Certificate of Change of Name (CM9) if applicable.

3. **Registered For Vat Purposes In Terms Of The Value-Added Tax Act,** *(Act Nr. 89 of 1991)*

(Make an X in the appropriate space below)

Yes ☐

No ☐

REGISTRATION NO: .....

RDC10

INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids[1] invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging) [2]. Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
3. Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
   a. Take all reasonable steps to prevent such abuse;
   b. Reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
   c. Cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid.

[1] Includes price quotations, advertised competitive bids, limited birds and proposals.

[2] Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices of lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____

(Bid Number and Description)

In response to the invitation for the bid made by:

_____

(Name of Municipality/Municipal Entity)

Do hereby make the following statement that I certify to be true an complete in every respect:

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and compete in every respect;
3. I am authorised by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorised by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word “competitor”” shall include any individual or organization, other that the bidder, whether or not affiliated with the bidder who,:
    a. Has been requested to submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
    b. Could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and provides the same goods and services as the bidder and/or is in the same line of business as the bidder.
6. The bidder has arrived at the accompanying bid independently form, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement of arrangement with any competitor regarding:
    a. Prices;
    b. Geographical area where product of services will be rendered (market allocation);
    c. Methods, factors of formulas used to calculate prices;

d. The intention or decision to submit or not to submit, a bid;
e. The submission of a bid which does not meet the specifications and conditions of the bid; or
f. Bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangement with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or to the awarding of the contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practises related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted form conduction business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

[3] Joint venture of Consortium means an associations of persons for the purpose of combining there expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDE 1
RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before submission of this tender, amending or amplifying the tender documents, have been taken in account in this tender offer:

	DATE	TITLE OR REFERENCE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDE 2
PROPOSED AMENDMENTS

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such deviations and qualifications in **a covering letter to his tender and reference such letter in this schedule**.

The Tenderer's attention is drawn to clause 3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the Employer's handling of material deviations and qualifications.

PAGE	CLAUSE OR ITEM	PROPOSAL

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

PORTION 2: CONTRACT

PART C1: AGREEMENTS AND CONTRACT DATA

CONTENTS

C1.1 FORM OF OFFER AND ACCEPTANCE 2
C1.2. CONTRACT DATA 6

STAMP

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The Seller, identified in the Acceptance signature block, has solicited offers to enter into a contract for:

THE PROVISIONING OF CONVERGED VOICE AND DATA INFRASTRUCTURE AND RELATED SUPPORT SERVICES: 1 YEAR PERIOD: WITH EFFECT FROM 01 OCTOBER 2013 OR NEAREST DATE

The Purchaser, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the returnable schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Purchaser, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the purchaser offers to perform all of the obligations and liabilities of the Purchaser under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

This Offer may be accepted by the Seller by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Purchaser before the end of the period of validity stated in the Tender Data, whereupon the Purchaser becomes the party named as the Purchaser in the Conditions of Contract identified in the Contract Data.

NAME(s): (BLOCK LETTERS) _____ _____

CAPACITY of authorized agents: _____ _____

SIGNATURE(s) of authorized agents: _____ _____

SIGNED at _____ on this _____ day of _____

WITNESSES: (Full name – BLOCK LETTERS – and signature)

1. _____ _____

2. _____ _____

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Seller identified below accepts the Purchaser's Offer. In consideration thereof, the Purchaser shall pay the Seller the amount due in accordance with the, Conditions of Contract identified in the Contract Data. Acceptance of the Purchaser's Offer shall form an agreement, between the Purchaser and the Seller upon the terms and conditions contained in this Agreement and in the, Contract that is the subject of this Agreement.

The terms of the contract, are contained in

Part T1	Tendering Procedures
Part T2	Returnable Documents
Part C1	Agreements and Contract Data, (which includes this Agreement)
Part C2	Pricing Data
Part C3	Scope of Work

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C3 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Seller and the Purchaser during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this schedule, which must be signed by the authorised representative(s) of both parties.

The Purchaser shall within two weeks after receiving a letter of acceptance, contact the Seller's representative (whose details are given in the Contract Data) to arrange the delivery of guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data, at or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

NAME(s): (BLOCK LETTERS) ....

CAPACITY of authorized agents: ....

SIGNATURE(s) of authorized agents: ....

SIGNED at ..... on this ..... day of .....

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Seller prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender;
2. A Purchaser's covering letter shall not be included in the final contract document. Should any matter in such, letter, which constitutes a deviation as aforesaid become the subject of agreements reached during the process of, offer and acceptance, the outcome of such agreement shall be recorded here;
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here;
4. Any change or addition to the tender documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the Contract.

1. **Subject** .....
   Details .....

2. **Subject** .....
   Details .....

3. **Subject** .....
   Details .....

4. **Subject** .....
   Details .....

5. **Subject** .....
   Details .....

By the duly authorised representatives signing this agreement, the Purchaser and the Seller agree to and accept the foregoing Schedule of Deviations as the only deviations from the amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the offer agreed by the Seller and the Purchaser during this process of offer and acceptance.

It is expressly agreed that no other matter whether, oral communication or implied during the

period between the issue of the tender documents and the receipt by the Purchaser of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

For the Purchaser:

NAME(s): (BLOCK LETTERS) _____ _____

CAPACITY of authorized agents: _____ _____

ADDRESS OF ORGANISATION _____

_____

SIGNATURE(s) of authorized agents: _____ _____

SIGNED at _____ on this _____ day of _____

WITNESSES: (Full name – BLOCK LETTERS – and signature)

1. _____ _____

2. _____ _____

C1.2. CONTRACT DATA

C1.2.1 GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract applicable to this Contract shall be the document "GOVERNMENT PROCUREMENT: GENERAL CONDITIONS OF CONTRACT" issued by the National Treasury of the Republic of South Africa, read together with the Variations and Additions to the Conditions of Contract (Special Conditions of Contract) as well as the Data provided by Purchaser.

THE NATIONAL TREASURY



Republic of South Africa

GOVERNMENT PROCUREMENT:

GENERAL CONDITIONS OF CONTRACT

Revised July 2010

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GENERAL CONDITIONS OF CONTRACT

1. Definitions

.

The following terms shall be interpreted as indicated:

1.1. “Closing time" means the date and hour specified in the bidding documents for the receipt of bids

1.2. "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

1.3. "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.

1.4. "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

1.5. "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.

1.6. "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

1.7. "Day" means calendar day.

1.8. "Delivery" means delivery in compliance of the conditions of the contract or order.

1.9. "Delivery ex stock" means immediate delivery directly from stock actually on hand.

1.10. "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the goods are so delivered and a valid receipt is obtained.

1.11. "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.

1.12. "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

1.13. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.

1.14. "GCC" means the General Conditions of Contract.

1.15. "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.

1.16. "Imported content" means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the goods covered by the bid will be manufactured.

1.17. "Local content" means that portion of the bidding price, which is not included in the

imported content provided that local manufacture does take place.

1.18. "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.

1.19. "Order" means an official written order issued for the supply of goods or works or the rendering of a service.

1.20. "Project site," where applicable, means the place indicated in bidding documents.

1.21. "Purchaser" means the organization purchasing the goods.

1.22. "Republic" means the Republic of South Africa.

1.23. "SCC" means the Special Conditions of Contract.

1.24. "Services" means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.

1.25. "Supplier" means the successful bidder who is awarded the contract to maintain and administer the required and specified service(s) to the State.

1.26. "Tort" means in breach of contract.

1.27. "Turnkey" means a procurement process where one service provider assumes total responsibility for all aspects of the project and delivers the full end product / service required by the contract.

1.28. "Written" or "in writing" means hand-written in ink or any form of electronic or mechanical writing.

2. Application

2.1. These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services (excluding professional services related to the building and construction industry), sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.

2.2. Where applicable, special conditions of contract are also laid down to cover specific goods, services or works.

2.3. Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

3.1. Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.

3.2. Invitations to bid are usually published in locally distributed news media and on the municipality/municipal entity website.

4. Standards

4.1. The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information inspection

5.1. The supplier shall not, without the purchaser's prior written consent, disclose the

contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2. The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.

5.3. Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.

5.4. The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent Rights

6.1. The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

6.2. When a supplier developed documentation / projects for the municipality / municipal entity, the intellectual, copy and patent rights or ownership of such documents or projects will vest in the municipality / municipal entity.

7. Performance security

7.1. Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.

7.2. The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.

7.3. The performance security shall be denominated in the currency of the contract, or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:

a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or

b) a cashier's or certified cheque.

7.4. The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified.

8. Inspections, tests and analyses

8.1. All pre-bidding testing will be for the account of the bidder.

8.2. If it is a bid condition that goods to be produced or services to be rendered should at

any stage be subject to inspections, tests and analyses, the bidder or contractor's premises shall be open, at all reasonable hours, for inspection by a representative of the purchaser or organization acting on behalf of the purchaser.

8.3. If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.

8.4. If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the goods to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.

8.5. Where the goods or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such goods or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.

8.6. Goods and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.

8.7. Any contract goods may on or after delivery be inspected, tested or analysed and may be rejected if found not to comply with the requirements of the contract. Such rejected goods shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with goods, which do comply with the requirements of the contract. Failing such removal the rejected goods shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute goods forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected goods, purchase such goods as may be necessary at the expense of the supplier.

8.8. The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 22 of GCC.

9. Packing

9.1. The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2. The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

10.1. Delivery of the goods and arrangements for shipping and clearance obligations, shall be made by the supplier in accordance with the terms specified in the contract.

11. Insurance

11.1. The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified.

12. Transportation

12.1. Should a price other than an all-inclusive delivered price be required, this shall be specified.

13. Incidental Services

13.1. The supplier may be required to provide any or all of the following services, including additional services, if any:

a) performance or supervision of on-site assembly and/or commissioning of the supplied goods;
b) furnishing of tools required for assembly and/or maintenance of the supplied goods;
c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
d) performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
e) training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.

13.2. Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

14. Spare Parts

14.1. As specified, the supplier may be required to provide any or all of the following materials, notification, and information pertaining to spare parts manufactured or distributed by the supplier:

a) Such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and;
b) in the event of termination of production of the spare parts:
   i. advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
   ii. following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1. The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract.

The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2. This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the

final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise.

15.3. The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.

15.4. Upon receipt of such notice, the supplier shall, within the period specified and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5. If the supplier, having been notified, fails to remedy the defect(s) within the period specified, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

15.6. The method and conditions of payment to be made to the supplier under this contract shall be specified.

16. Payment

16.1. The method and conditions of payment to be made to the supplier under this contract shall be specified.

16.2. The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfilment of other obligations stipulated in the contract.

16.3. Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.

16.4. Payment will be made in Rand unless otherwise stipulated.

17. Prices

17.1. Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized or in the purchaser's request for bid validity extension, as the case may be.

18. Variation orders

18.1. In cases where the estimated value of the envisaged changes in purchase does not vary more than 15% of the total value of the original contract, the contractor may be instructed to deliver the goods or render the services as such. In cases of measurable quantities, the contractor may be approached to reduce the unit price, and such offers may be accepted provided that there is no escalation in price.

19. Assignment

19.1. The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

20.1. The supplier shall notify the purchaser in writing of all subcontracts awarded under this contract if not already specified in the bid. Such notification, in the

original bid or later shall not relieve the supplier form any liability or obligation under the contract.

21. Delays in the supplier's performance

21.1. Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.

21.2. If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.

21.3. The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the goods are required, or the supplier's services are not readily available.

21.4. Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of penalties.

21.5. Upon any delay beyond the delivery period in the case of a goods contract, the purchaser shall, without cancelling the contract, be entitled to purchase goods of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

22.1. Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination for default

23.1. The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:

a) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
b) if the supplier fails to perform any other obligation(s) under the contract; or
c) if the supplier, in the judgement of the purchaser, has engaged in corrupt or

fraudulent practices in competing for or in executing the contract.

23.2. In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner, as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

23.3. Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.

23.4. If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the supplier as having no objection and proceed with the restriction.

23.5. Any restriction imposed on any person by the purchaser will, at the discretion of the purchaser, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the purchaser actively associated.

23.6. If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:

a) the name and address of the supplier and / or person restricted by the purchaser;
b) the date of commencement of the restriction
c) the period of restriction; and
d) the reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

23.7. If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website

24. Anti-dumping and countervailing duties and rights

24.1. When, after the date of bid, provisional payments are required, or anti-dumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the supplier to the purchaser or the purchaser may deduct such amounts from moneys (if any) which may otherwise be due to the supplier in regard to goods or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other

contract or any other amount which may be due to him.

25. Force Majeure

25.1. Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

25.2. If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

26.1. The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the purchaser.

27. Settlement of disputes

27.1. If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

27.2. If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.

27.3. Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.

27.4. Notwithstanding any reference to mediation and/or court proceedings herein,

a) the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
b) the purchaser shall pay the supplier any monies due the supplier for goods delivered and / or services rendered according to the prescripts of the contract.

28. Limitation of Liability

28.1. Except in cases of criminal negligence or wilful misconduct, and in the case of infringement pursuant to Clause 6;

a) the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and
b) the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

29. Governing language

29.1. The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.

30. Applicable law

30.1. The contract shall be interpreted in accordance with South African laws, unless otherwise specified.

31. Notices

31.1. Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice.

31.2. The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

32.1. A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.

32.2. A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.

32.3. No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid SARS must have certified that the tax matters of the preferred bidder are in order.

32.4. No contract shall be concluded with any bidder whose municipal rates and taxes and municipal services charges are in arrears.

33. Transfer of contracts

33.1. The contractor shall not abandon, transfer, cede assign or sublet a contract or part thereof without the written permission of the purchaser

34. Amendment of contracts

34.1. No agreement to amend or vary a contract or order or the conditions, stipulations or provisions thereof shall be valid and of any force unless such agreement to amend or vary is entered into in writing and signed by the contracting parties. Any waiver of the requirement that the agreement to amend or vary shall be in writing, shall also be in writing.

35. Prohibition of restrictive practices

35.1. In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder(s) is / are or a contractor(s) was / were involved in collusive bidding.

35.2. If a bidder(s) or contractor(s) based on reasonable grounds or evidence obtained by the purchaser has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in section 59 of the Competition Act No 89 Of 1998.

35.3. If a bidder(s) or contractor(s) has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

C1.2.2 VARIATIONS AND ADDITIONS TO THE CONDITIONS OF CONTRACT (SPECIAL CONDITIONS)

The additions, deletions and alterations to the General Conditions of Contract are:

CLAUSE	CONTRACT DATA
1	**DEFINITIONS**
	Add the following definitions:
"1.29	**AGREEMENT** means the Agreement arising from the signing of the Form of Offer and Acceptance by the parties.
1.30	**SPECIFICATION** means the document drawn up in accordance with the Pricing Instructions contained in the Pricing Data.
1.31	**CONTRACT DOCUMENTS** means the Agreement and all documents referenced therein.
1.32	**CONTRACT DRAWINGS** means the drawings listed in the Scope of Work.
1.33	**CONTRACT SUM** means the total of prices in the Form of Offer and Acceptance.
1.34	**SCHEDULE** means the variables listed in the Contract Data.
1.35	**SERVICE PROVIDER** is synonymous with **SUPPLIER** above
1.36	**EMPLOYER** is synonymous with **PURCHASER** above.
1.37	**PRICES** are the amounts stated in the price column of the Price Schedule"
4	**STANDARDS**
4.1	Add the words " in the Scope of Work" to the end of clause 4.1
7	**PERFORMANCE SECURITY**
7.1	Add the following: "The amount of the Performance Security is given in the Data provided by the Employer"
11	**INSURANCE**
	<u>Add the following</u> clause: "11.2. <u>Contractor to Insure</u> The Contractor/Sub-contractor must obtain for the duration of the contract until the issuing of the Defects Certificate or the end of the Maintenance Period, the following insurance policies in the name of the Contractor (including all Subcontractors whether nominated or otherwise) at an insurance company within 14 (fourteen) days of the notification of acceptance of the tender and must pay all premiums and supply proof thereof to the relevant Project Manager 30 (thirty) days before the inception of the contract, that the policies have been taken out and that all premiums have been paid:

CLAUSE	CONTRACT DATA
	a) All Risk Insurance cover with regard to all Plant and Materials and Equipment owned, leased or hired by the Contractor that are used in the execution of the contract for the full replacement value thereof. b) Motor Vehicle and Passenger Liability Insurance cover indicating the registration numbers of the vehicles owned, leased or hired by the Contractor that are used in the execution of the contract to the amount of at least R10-million per claim with the number of claims unlimited. c) SASRIA cover for motor vehicles and Plant and Materials and Equipment owned, leased or hired by the Contractor that are used in the execution of the contract for the full replacement value thereof. d) In respect of Plant and Materials and Equipment and Motor Vehicles brought onto the Site by or on behalf of Subcontractors, the Contractor shall be deemed to have complied with the provisions of this Sub-Clause by ensuring that such Subcontractors have similarly insured such Plant and Materials and Equipment and Motor Vehicles. e) Without limiting the Contractor's obligation in terms of the Contract, the Contractor will effect and maintain for the duration of the contract period until the issuing of the Defects Certificate or the end of the Maintenance Period insurance against all accidents or misfortunes including accidental loss of or damage to tangible property (except the Works, Plant and Materials and Equipment) and liability for accidental death of or bodily injury to or illness or disease contracted by any person (not an employee of the Contractor) occurring during the Period of Insurance and arising out of or in connection with the performance of the Insured Contract at the Contract Site as defined in the Schedule at any insurance company or under the policy effected by the Employer within 30 (thirty) days before the inception of the contract. The minimum limit of indemnity for any one event is R5-million and the number of claims will be unlimited. 11.3. <u>Insurance Premium payable</u> The Contractor will be liable for the payment of the insurance premium as calculated by the Employer's insurer within 14 (fourteen) days before the inception of the contract to the Section: Insurance and Risk Management, should the Contractor take out the Public Liability Insurance cover in terms of the insurance policy of Sub-Clause 1(e) of this Clause. 11.4 Proof must also be submitted that the Contractor complies with the conditions of the following legislation: - Compensation for Occupational Injuries and diseases, 1993. - Unemployment Insurance Act, 1996. - The Contractor shall in respect of the Site of the contract works appoint in writing a competent person to meet the requirements of the Health and Safety Act, No 85 of 1993 as amended. 11.5. The Project Manager involved must furnish the required insurance documentation, by 30 (thirty) days before the inception of the contract, to the Section: Insurance and Risk Management 11.6. CONTRACT WORKS CLAIMS REPORTING PROCEDURES 11.6.1 <u>Reporting of incidents</u>

CLAUSE	CONTRACT DATA
	In the event of an occurrence, which is likely to give rise to a claim under the insurance policy effected by the Employer, the Contractor/Sub-contractors and Project Manager will adhere to the following procedures: a) In addition to any statutory obligations and/or requirements contained in the Conditions of Contract, the Contractor shall notify the Employer and the Project Manager of every occurrence within 48 (forty-eight) hours giving the circumstances, nature and an estimate of the loss or damage. b) The Project Manager will be responsible to complete and submit the relevant claim documentation for each incident within 30 (thirty) days after the incident occurred, to the Section: Insurance and Risk Management. Should the incident be reported by the Project Manager more than 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management, the claim will only be considered if the claim documentation is accompanied by a letter from the relevant Head of Department motivating the reason(s) for the late reporting of the incident, but the Project Manager must take note that the Insurer might repudiate the loss if it is found that the insured's rights have been compromised as a result of the late reporting. c) The following documentation must be included with the claim documentation: Photos of damages caused or suffered as proof or substantiation of the claims. d) In the event of Insured Property being damaged during the Contract Works beyond economical repair, the property must be safeguarded and be handed over to the Employer's insurer for salvage. e) The Section: Insurance and Risk Management will inform the Employer's insurer of the incident. The Contractor/Subcontractor shall afford all reasonable access to the Site to the Employer, the Project Manager, the Employer's insurers and/or representatives for the purpose of assessment of any loss or damage. 11.6.2 <u>Reporting of catastrophic incidents</u> In the event of an occurrence, which is likely to give rise to a claim, under the insurance policy effected by the Employer, with an estimated loss or damage of more than R250 000,00, the Contractor and the Project Manager will adhere to the following procedures: a) In addition to any statutory obligations and/or requirements contained in the General Conditions of Contract, the Contractor shall notify the Employer and the Project Manager of every occurrence within 24 (twenty-four) hours giving the circumstances, nature and an estimate of the loss or damage. The Project Manager must notify the Section: Insurance and Risk Management on the same day that the Contractor/Sub-contractor has notified the Project Manager of the incident. c) The Section: Insurance and Risk Management will notify the Employer's insurer of the incident. The Contractor/Sub-contractor shall afford all reasonable access to the Site to the Employer, the Project Manager, the Employer's insurers and/or representatives for the purpose of assessment of any loss or damage.

CLAUSE	CONTRACT DATA
	d) The Project Manager will be responsible to complete and submit the relevant claim documentation for each incident within 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management. Should the incident be reported by the Project Manager more than 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management, the claim will only be considered if the claim documentation is accompanied by a letter from the relevant Head of Department motivating the reason(s) for the late reporting of the incident. Should the relevant claim documentation not be submitted within 30 (thirty) days, the claim will be repudiated. 11.6.3 Reporting of crime related incidents All crime related incidents, losses or shortages irrespective of the value, must within 24 (twenty-four) hours by the person who was involved or who has discovered the incident to the nearest South African Police Services (SAPS) station. The name of the Police Station, Investigation Officer and the Case number must be obtained and stated on the Contractor Claim Form. Should the incident not be reported to the SAPS, the claim will be repudiated. 11.6.4 Claim documentation The Project Manager must obtain all relevant information from the Contractor/Sub-contractor and complete the Contractor Claim Form, included in this report as Annexure B that is available on the **Intranet**. The project number must be stated on the Contractor Claim Form. The Project Manager must submit with the Contractor Claim Form a detailed cost sheet indicating the estimate of the loss or damage. Any misrepresentation, misdescription or non-disclosure of material facts, at the option of the insurers, can result in claims submitted being declared null and void. 11.6.5 Authorization of claim forms It is imperative that a formally delegated official or his nominee of the Employer should authorize the Contractor Claim Forms as proof of the appropriate authorization, verification and approval of claims submitted. The Head of Department must provide an authorization letter to the Section: Insurance and Risk Management stating the names and the specimen signatures of the delegated official or his nominee within 30 (thirty) days from approval of this report by Council. Should the delegated official or his nominee not sign the relevant claim form, the claim will be repudiated as this may lead to inappropriate independent verification of the validity of claims, thereby increasing the risk of insurance fraud and consequent reputation damage to the Employer. 11.6.6 Contractor to pay deductibles Any claim in terms of the insurance affected by the Employer shall be subject to the Contractor being responsible for the payment of the amount stated in the Annexure to the Policies as being the deductible (first amount payable or Excess) as defined in the Certificate of Insurance issued by the Employer's insurer in terms of the Policy.

CLAUSE	CONTRACT DATA
	11.6.7 Settlement of claims All incidents reported to the Section: Insurance and Risk Management in respect of an occurrence, which is likely to give rise to a claim will be forwarded to the Employer's insurer who will take the necessary actions for the settlement of any such claims. The Contractor shall negotiate for the settlement of claims with the Employer or the Employer's insurer through the Section: Insurance and Risk Management. The Employer's Chief Financial Officer will authorize all settlements of claims. Should action for the settlement of any such claim to the satisfaction of the Project Manager not be taken by the Contractor/sub-contractor within 30 (thirty) days after receipt of such claim by the Contractor/sub-contractor, the Employer or the Employer's insurer may settle any such claim, after giving the Contractor notice of its intention to do so; provided that no such claim shall be settled by the Employer or the Employer's insurer without first consulting the Contractor/sub-contractor. The foregoing provisions of this Sub-Clause shall apply *mutatis mutandis* to any such claim received by the Contractor directly. It is distinctly understood that should the Employer or the Employer's insurer not settle any such claim at the earliest opportunity, it shall in no way prejudice the Employer or the Employer's insurer's rights to recover from the Contractor nor shall the Contractor raise any such defence against the Employer or the Employer's insurer. Any moneys which become payable as a result of a claim under the insurance effected by the Employer shall be paid to the Employer after deduction of the deductible amount (first amount payable or Excess), who shall pay such amount to the Contractor or to the party rectifying, repairing or reinstalling or who has suffered the loss or damage, but this shall in no way affect the Contractor's obligations in terms of the Contract."
16	**PAYMENT**
"16.5	**Add the following** clauses: For Term Service contracts the Supplier assesses the amount due for work completed on or around the 25th of each month and furnishes the Purchaser with an invoice for the change in the amount due since the previous payment.
16.6	The Purchaser corrects any incorrect assessments and advises the Supplier accordingly before paying."
17	**PRICES**
"17.2	**Add the following** clauses: **"VARIABLE/QUALIFIED PRICES** The attention of tenderers is drawn to clause 17 of the General Conditions of Contract, in terms of which tenderers are required to submit the cost factors governing the selling price, in order that any variation in cost may be positively proved without difficulty, in the event of the selling price/s being subject to variation.

CLAUSE	CONTRACT DATA
	Where the price/s offered is/are based on the rate of exchange, the price basis must be stated in the **DATA PROVIDED BY THE SUPPLIER.** **A bank statement or auditor's report indicating the exchange rate which was applicable during the transaction payment to the overseas supplier must be submitted with each invoice in the case of imported goods.** Furthermore, the attention of tenderers is drawn to the fact that documentary proof, substantiating any claims in respect of price adjustments, is essential for the approval of such claims and must be submitted timeously and to the satisfaction of the Municipality. Where the price list method is used to quote prices, the price list must be attached to the tender document in order to qualify for future price escalations. **FORWARD EXCHANGE RATE COVER** In the event of price/prices being based on the exchange rate, the successful tenderer/s will be required to obtain exchange rate cover in order to protect the Municipality against exchange rate variations. Proof must be provided that forward Exchange Rate cover has been taken out within 14 days after an order has been placed. If proof that cover was taken out within 14 days after the order has been placed, is not submitted to the City of Tshwane, with the invoice, the contract price adjustment will not be accepted and the contract may be cancelled. **COST PRICE ADJUSTMENT CLAUSES** In instances where variable/qualified prices are part of the cost factors submitted by the tenderer the following will be applicable: a) Request for price adjustments must be submitted within 30 days after the price indices are available with reference to the date of the original invoice applicable to the City of Tshwane for payment. b) All price adjustments applicable to a specific financial year of the City of Tshwane must be submitted to the City of Tshwane for that specific financial year within 5 days after the closure of the specific financial year to ensure correct statement of creditor as well as inventory values as on 30 June of each financial year. (City of Tshwane financial year cycles ranges from 1 July to 30 June the following years) c) Price adjustments received more than 6 months after price indices were available for that specific financial year will not be considered for payment except when negligence can be shown on the side of the City of Tshwane. d) The **base date index (B)** is the latest available index before the base date. e) The **latest index (L)** is the latest available index before the date of assessment of an amount due. f) The **price adjustment Factor (F)** is the total of the products of each of the proportions stated in the Contract Data multiplied by (L-B)/B for the index linked to it. g) If an index is changed after it has been used in a calculation, the calculation is redone and a correction is included in the next assessment of the amount due."
31	**NOTICES**
"31.3	**<u>Add the following</u>** clauses: The Supplier will chose his <u>domicilium citandi et executandi</u> as Pretoria, where all legal processes may be served and agrees to submit to the jurisdiction of the South African Courts"

CLAUSE	CONTRACT DATA
	Add the following clauses:
"36	**CANCELLATION OF CONTRACT**
	"With reference to Section 10(4) of the Preferential Procurement Regulations, 2001 pertaining to the Preferential Procurement Policy Framework Act, Act 5 of 2000, which makes provision for the cancellation and re-invitation of tenders, please be advised of the following: *1.1 The tenderer confirms that he/she is aware of the suspensive condition that the tender amount as mentioned in the tender document is subject to availability of funds to cover the total envisaged expenditure for the tender in question; and* *1.2 The tenderer further confirms that the Purchaser has the right to cancel the tender if the funds necessary to cover the total envisaged expenditure of the tender are not available for the current financial year;* *1.3 The tenderer further confirms that if the tender is cancelled in terms of paragraph 1.2 supra he/she will not hold the Purchaser responsible for any loss or damages suffered by the tenderer due to the lodging of his/her tender.* Notwithstanding anything contained in this agreement, the Purchaser reserves the right to terminate this contract by giving three (3) month's written notice to this effect."
	Add the following clauses:
"37	**TERM SERVICE CONTRACTS** Add the following new clause:
	37.1. A Term Service is a contract to maintain an asset of the Purchaser for a period of time. 37.2. The Supplier provides this Service as set out in the Scope of Work"

C1.2.3 DATA PROVIDED BY THE SELLER

CLAUSE/OPTION		DATA
1. 1.28	**Definitions**	The name of the Seller is: ***The City of Tshwane*** The authorised and designated representative of the Seller is: Name: Director: Group Information Communication Technology Department Physical address: 201 Lilian Ngoyi Street, Standard Bank Building 5th Floor Fax Number: 086 225-4133 E-mail: abelmos@tshwane.gov.za Postal address: P O Box 440 Pretoria 0001 The address for receipt of communications is: ***The above postal address***
10. 10.1 10.2	**Delivery and Documents**	Goods are to be delivered on weekdays between 09:00 and 15:00 at Dam Store Centurion Delivery is to take place within ..... days from receipt of Purchaser's order.
21.1	**Time Schedule**	The starting date of the Service is The Term Service period is
27. 27.2	**Settlement of Disputes**	In the event that the parties fail to agree on a mediator, the mediator will be nominated by

C1.2.4 DATA PROVIDED BY THE PURCHASER

CLAUSE/OPTION		DATA	
1.	**Definitions**		
1.25		The name of the Purchaser is: The authorised and designated representative of the Purchaser is: Name: ..... Physical address: .... Postal address: .... Fax Number: ..... E-mail: ..... The address for receipt of communications is: ***The above postal address***	
17.	**Prices**	**If prices are not fixed:** The proportions used to calculate the Price Adjustment Factor are:	
17.1	Price Adjustment		Linked to the Index for:
		0. 0. 0. 0. 0. 0.	
		1.0	
		The base date for indices is ..... The indices are those issued by:	

<table>
<tr><th colspan="2">CLAUSE/OPTION</th><th>DATA</th></tr>
<tr><td>17.1</td><td>Price Adjustment</td><td>If currency fluctuations are applicable:
(Note: Imported Materials and/or Equipment are excluded from any contract price adjustment but adjusted in terms of currency fluctuations only.)
<table>
<tr><th>Material / Equipment</th><th>Rate or Price
(excl. VAT)</th></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
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PART C2: PRICING DATA

PRICING DATA

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C2.1 PRICING INSTRUCTIONS

1. General

1.1 This section provides the tenderer with guidelines and requirements with regard to the completion of the Price Schedule. The Schedule has to be completed in black ink and the tenderer is referred to the Tender Specifications in regard to the correction of errors.

1.2 The Price Schedule shall be read with all the documents which form part of this Contract.

1.3 The following words shall have the meanings hereby assigned to them:

Unit: The unit of measurement for each item of work in terms of the Specifications and the Project Specifications.

Quantity: The number of units of work for each item.

Rate: The payment per unit of work at which the tenderer tenders to do the work.

Price: The product of the quantity and the rate tendered for an item.

Lump sum: An amount tendered for an item, the extent of which is described in the Price Schedule, the Specification and the Scope of Work, but the quantity of work of which is not measured in any units.

2. Units of Measurements

The units of measurement described in the Price Schedule are metric units.
Abbreviations used in the of Quantities are as follows:

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1000kg)
m^2	=	square metre	no.	=	number
m^2.pass	=	square metre pass	sum	=	lump sum
ha	=	hectare	MN	=	meganewton
m^3	=	cubic metre	MN.m	=	meganewton-metre
m^3.km	=	cubic metre-kilometre	PC sum	=	Prime Cost sum
l	=	litre	Prov sum	=	Provisional sum
kl	=	kilolitre	%	=	Per cent
MPa	=	megaspascal	kW	=	kilowatt

3. Rates

This price list has columns for quantity, rate and price for the goods. Entries in these columns are made as follows:

3.1. If the Supplier is to be paid an amount for the goods which is a fixed price for an item or a fixed price for each of a series of items, the tendering supplier enters the amount in the price column only, the other two columns being left blank.

3.2. If the Supplier is to be paid an amount for the goods which is the unit rate for each item multiplied by the quantity of the item supplied, (i.e. a 'Price Schedule' arrangement) - the tendering supplier enters the rate which is then multiplied by the quantity (which has been entered either by him or by the Purchaser) to produce the price which is also entered.

3.3. If the Supplier is to be paid an amount for an item of the goods which is the rate multiplied by the quantity supplied -whatever that quantity turns out to be (i.e. a 'schedule of rates' arrangement) - the tendering supplier enters the rate only, the other two columns being left blank. The tendering supplier's offer cannot include a total of the prices which covers all the items which the Supplier has to supply if any of the supply is dealt with using items with a rate only.

3.4. Rate only entries must not be made for work covered by other items.

CORRECTION OF ENTRIES MADE BY TENDERER

Any entry made by the Tenderer in the Price Schedule, forms, etc, which the tenderer desires to change, shall not be erased or painted out. A line shall be drawn through the incorrect entry and the correct entry shall be written above in black ink and the full signature of the Tenderer shall be placed next to the correction.

C2.2 PRICE SCHEDULE

GROUP	ITEM CODE	ITEM DESCRIPTION
DATA		
OS10K Switch		
	OS10K-XNI-U32E	OS10K network interface card includes 32 unpopulated 10G SFP+ ports. Supports standard tables for L2, L3 and ACL policies, MPLS ready.
	OS10K-QNI-U8E	OS10K network interface card includes 8 unpopulated 40G QSFP+ ports. Supports standard tables for L2, L3 and ACL policies, MPLS ready
	OS10K-SW-A	Advanced Software for support of SPB and Virtual Chassis on OS10K. One license required per chassis.
	OS10K-SW-DC	Data Center Software for support of DCBX, FCoE and EVB on OS10K. One license required per chassis
	OS10K-GNI-U48E	OS10K Gigabit network interface card offers 48 unpopulated wire rate 1000BaseX SFP ports. This Enhanced network interface card is MPLS ready, and provides large table support for L2, L3, and ACL policies.
	OS10K-GNI-C48E	OS10K Gigabit network interface card offers 48 wire rate RJ-45 1000Base-T ports. This Enhanced network interface card is MPLS ready, and provides large table support for L2, L3, and ACL policies.
	OS10K8-RCB-A	OS10K redundant bundle with AC power and SSL (DES,3DES,RC2,RC4). Redundant bundle includes 1 x OS10K Chassis, 2 x Fan Trays, 4 x OS10K-PS-25A power supplies, 2 x OS10K-CMM chassis management module, 2 x OS10K-CFM chassis fabric module and fully featured AOS software w/ advanced IP routing SW (IPv4/IPv6). Includes power cord.
OS6850E Switch		
	OS6-XNI-U2	OS6850E Optional 10GigE uplink module. Supports 2 SFP+ 10GigE ports. Inserts in the stacking cages and connects to theCX-4 ports at the rear of the OS6850E chassis.
	OS6850-CBL-150	OS6850 150 centimeters long stacking cable.
	OS6850-CBL-300	OS6850 3 meters long stacking cable. Supported on the 24 port models only.
	OS6850-CBL-30	OS6850 30 centimeters long stacking cable.
	OS6850-CBL-60	OS6850 60 centimeters long stacking cable.

	OS6850E-SW-AR	OS6850E Advanced Routing software. Includes support for IPv4 Routing protocols OSPFv2, BGPv4, PIM-SM/DM and DVMRP. Includes support for IPv6 Routing protocol OSPFv3.
	OS-BPS	OS-BPS: OmniSwitch backup power shelf (BPS). It Protects against primary power supply and AC circuit failure. The BPS can actively backup 8 devises. It has total of 5 power supply bays to accommodate up to three PoE power supplies (OS-BPS-P-xx) and two 450W system power supplies (OS-BPS-S). By default the power supply shelf comes with one 450W AC power supply, four 1m. long DB25 cables, and country specific power cord. Additional system and PoE power supplies have to be purchased separately.
	OS-BPS-P	OS-BPS-P: Modular Power Over Ethernet (PoE) AC power supply for OmniSwitch Backup Power Shelf (BPS). It provides up to 1200W @110V of PoE power. Comes with country specific power cord. Must be installed along with OS-BPS-S system power supply.
	OS-BPS-S	OS-BPS-S: Modular 450W AC power supply for OmniSwitch Backup Power Shelf (BPS). It provides a backup for system power only. Comes with country specific power cord. Separate power supply has to be purchased if PoE backup is required.
	OS6850EU24X	OS6850E-U24X: Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 22 SFP GigE ports, 2 combo ports (10/100/1000 BaseT or 1000 BaseX), 2 SFP+ 10GigE ports, and 2 CX-4 ports. The 2 CX-4 ports can be used as stacking ports or as connectors for the OS6-XNI-U2 that supports 2 SFP+ 10GigE ports. The bundle includes a 126W AC power supply with power shelf and country specific power cord, user manuals access card, rack mounts and RJ-45 to DB-9 adaptor.
	OS6850EP24XH	OS6850E-P24X: Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 20 RJ-45 10/100/1000 BaseT PoE ports, 4 combo ports (10/100/1000 BaseT or 1000 BaseX), 2 SFP+ 10GigE ports, and 2 CX-4 ports. The 2 CX-4 ports can be used as stacking ports or as connectors for the OS6-XNI-U2 that supports 2 SFP+ ports. The bundle includes a 510W AC PoE power supply with power shelf and country specific power cord,user manuals access card, rack mounts, and RJ-45 to DB-9 adaptor.
	OS6850EP48XH	OS6850E-P48X: Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 46 RJ-45 10/100/1000 BaseT PoE ports, 2 combo ports (10/100/1000 BaseT or 1000 BaseX), 2 SFP+ 10GigE ports, and 2 CX-4 ports. The 2 CX-4 ports can be used as stacking ports or as connectors for the OS6-XNI-U2 that supports 2 SFP+ 10GigE ports. The bundle includes a 900W AC PoE power supply with power shelf and country specific power cord,user manuals access card, rack mounts, and RJ-45 to DB-9 adaptor.

	OS6850E-BPPX	OS6850E-BPPX modular 900W AC backup power supply. Provides backup system and PoE power to one 48 port PoE switch. Ships with chassis connection cable, country specific power cord, power shelf and rack mounts.
	OS6850E-BP	OS6850E-BP modular 126W AC backup power supply. Provides backup power to one non-PoE switch. Ships with chassis connection cable and country specific power cord.
	OS6850E-BPPH	OS6850E-BPPH modular 510W AC backup power supply. Provides backup power to one PoE switch. Ships with chassis connection cable, country specific power cord, power shelf and rack mounts.
OS6855 Switch		
	ISFP-10G-C10M	10 m. direct attached SFP+ copper cable; industrial grade
	ISFP-10G-C3M	3 m. direct attached SFP+ copper cable; industrial grade
	ISFP-10G-C30CM	30 cm. direct attached SFP+ copper cable; industrial grade
	OS6855-24-FLTR	A pack of 4 air filters for 6855-24 model
	OS6855-PSS	OS6855-PSS power brick AC power supply. Provides only system power. Does not provide PoE. Ships with country specific power cord.
	OS6855-PSSPH	OS6855-PSSPH power brick AC power supply. Provides up to 180W of PoE only power to one OS6855-P14. Ships with country specific power cord.
	OS6855-PSL-C	OS6855-PSL-C fanless modular AC backup power supply. Provides backup system power to one OS6855-U24X switch. Ships with chassis connection cable and country specific power cord.
	OS6855-PSL-P	OS6855-PSL-P modular AC backup power supply. Provides backup system and PoE power to one OS6855-24 switch. Ships with chassis connection cable and country specific power cord.
	OS6855-24	OS6855-24: Hardened Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor designed to operate in harsh environments. It has 20 RJ-45 connectors individually configurable to 10/100/1000 BaseT four of which provide PoE, and 4 combo ports. The bundle comes with OS6855-PSL-P power supply, power shelf, country specific power cord, user manual access card and rack mounts.

	OS6855-P14	OS6855-P14 Hardened Gigabit Ethernet L3 fixed configuration fanless chassis in a 1U form factor designed to operate in harsh environments. It has 12 RJ-45 connectors individually configurable to 10/100/1000 BaseT, all of which are PoE capable, and 2 SFP ports that support various distances. The bundle comes with power supply, power shelf , country specific power cord, user manual access card and rack mounts. Ethernet optical transceivers, and backup power supplies can be ordered separately.
	OS6855-U10	OS6855-U10 Hardened Gigabit Ethernet L3 fixed configuration fanless chassis in a 1U form factor designed to operate in harsh environments. It has 2 RJ-45 connectors individually configurable to 10/100/1000 BaseT, and 8 SFP ports which support various distances. The bundle comes with OS6855-PSS power supply, power shelf, country specific power cord, user manual access card and rack mounts. Ethernet optical transceivers and backup power supplies can be ordered separately.
	OS6855-U24X	OS6855-U24X: Hardened Gigabit Ethernet L3 fanless chassis in a 1U form factor designed to operate in harsh environments. It comes wtih two 10 Gig SFP+ ports, 22 SFP ports which support various distances, and 2 combo ports configurable to be 10/100/1000 BaseT or 100/1000 Base-X. The 10Gig SFP+ ports can be used either as uplinks or as stacking ports.The bundle comes with an AC power supply, power shelf, country specific power cord, user manual access card and rack mounts.
OS6900 Switch		
	OS-XNI-T8	OS-XNI-T8: 10Gigabit Ethernet Optional Module for the OS6900 series of switches with 8 10GBase-T ports that support 1Gig and 10Gig speeds
	OS-XNI-U12	OS-XNI-U12: 10Gigabit Ethernet Optional Module for the OS6900 series of switches with 12 SFP+ ports that support 1Gig and 10Gig transceivers
	OS-XNI-U4	OS-XNI-U4: 10Gigabit Ethernet Optional Module for the OS6900 series of switches with 4 SFP+ ports that support 1Gig and 10Gig transceivers
	OS-HNI-U6	OS-HNI-U6: Hybrid Optional Ethernet Module for the OS6900 series of switches with 2 40Gig QSFP+ ports and 4 10Gig SFP+ ports . The SFP+ ports support 1Gig and 10Gig transceivers.
	OS-QNI-U3	OS-QNI-U3: 40Gigabit Ethernet Optional Module for the OS6900 series of switches with 3 40Gig QSFP+ port
	OS6900-SW-DC	Data Center Software for support of DCBX, FCoE and EVB on OS6900. One license required per chassis

	OS6900-SW-AR	OS6900-SW-AR: Advanced routing software license. Includes support for Policy Based Routing, VRF, BGP, OSPFv2, PIMSM/DM, DVMRP, IPv6 Routing, OSPFv3, RIPng, VRRPv3, SPB, and Virtual Chassis (VC).
	OS6900-T20-F	OS6900-T20: 10Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 20 10GBase-T ports, two optional module slots. Front to back cooling. The chassis includes a 450W AC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The OS6900-20 ships with country specific power cord, user manuals access card, rack mounts, and USB to RJ-45 adaptor.
	OS6900-T40-F	OS6900-T40: 10Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 40 10GBase-T ports, two optional module slots. Front to back cooling. The chassis includes a 450W AC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The OS6900-40 ships with country specific power cord, user manuals access card, rack mounts, and USB to RJ-45 adaptor.
	OS6900-X20-F	OS6900-X20: 10Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 20 SFP+ ports, one optional module slot. Front to back cooling. The chassis includes a 450W AC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The OS6900-X20 ships with country specific power cord; user manuals access card, rack mounts, and USB to RJ-45 adaptor.
	OS6900-X40-F	OS6900-X40:10Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 40 SFP+ ports, two optional module slots. Front to back cooling. The chassis includes a 450W AC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The OS6900-40 ships with country specific power cord, user manuals access card, rack mounts, and USB to RJ-45 adaptor.
	OS6900-BP-F	OS6900-BP-F: Modular AC backup power supply. Front to back cooling. Provides backup system power to one 6900 switch. Ships with country specific power cord.
Professional Services		
	803756-00	Network Consulting Services - This service provides consultation from an Alcatel-Lucent Professional Services expert to assist in defining a high-level solution for the data network to meet customers needs using the state-of-the-art technologies resulting in network effectiveness and business value. Price is a per day fee. Please contact Alcatel-Lucent Professional Services for a quote at ¿ professional.services@alcatel-lucent.com.

Transceivers		
	SFP-10G-C7M	10 Gigabit direct attached copper cable (7m, SFP plus)
	SFP-10G-LR	10 Gigabit optical transceiver (SFP+). Supports monomode fiber over 1310nm wavelength (nominal) with an LC connector. Typical reach of 10Km
	SFP-10G-ER	10 Gigabit optical transceiver (SFP+). Supports monomode fiber over 1550nm wavelength (nominal) with an LC connector. Typical reach of 40Km
	SFP-10G-SR	10 Gigabit optical transceiver (SFP+). Supports multimode fiber over 850nm wavelength (nominal) with an LC connector. Typical reach of 300m
	SFP-10G-GIG-SR	Dual-speed SFP+ optical transceiver. Supports multimode fiber over 850nm wavelength (nominal) with an LC connector. Supports 1000BaseSX and 10GBASE-SR
	XFP-10G-CX4	10 Gigabit Ethernet copper transceiver (XFP MSA). Supports links up to 15 meters only on standard CX4 type cables compliant with IEEE 802.3ak. InfiniBand type of cables are not supported. Only one CX4 transceiver can be used in OS6850 "X" models.
	XFP-10G-SR	10 Gigabit Ethernet optical transceiver (XFP MSA). Supports multimode fiber over 850nm wavelength (nominal) with an LC connector. Typical reach of 300m on 50/125 µm MMF.
	XFP-10G-LR	10 Gigabit Ethernet optical transceiver (XFP MSA). Supports single mode fiber over 1310nm wavelength (nominal) with an LC connector. Typical reach of 10 Km on 9/125 µm SMF.
	XFP-10G-ER40	10 Gigabit Ethernet optical transceiver (XFP MSA). Supports single mode fiber over 1550nm wavelength (nominal) with an LC connector. Typical reach of 40 Km on 9/125 µm SMF.
	XFP-10G-ZR80	10 Gigabit Ethernet optical transceiver (XFP MSA). Supports single mode fiber over 1550nm wavelength (nominal) with an LC connector. Typical reach of 80 Km on 9/125 µm SMF.
	3HE05935AA	1-port 100GBase LR10 CFP Optics Module, OTU4 4km or 100GE 10km, LC Connector, RoHS 5/6 compliant
	3HE04821AB	1-port 100GBase LR4 10km CFP Optics Module, 10km, LC Connector, RoHS 6/6 compliant
	3HE05752AB	1-port OTU4 LR10 10km CFP Optics Module, OTU4 10km, LC Connector, RoHS 5/6 compliant
	QSFP-40G-C7M	40 Gigabit direct attached copper cable (7m, QSFP+)
	QSFP-40G-SR	Four channel 40 Gigabit optical transceiver (QSFP+). Supports link lengths of 100m and 150m respectively on OM3 and OM4 multimode fiber cables.
	QSFP-40G-LR	Four channel 40 Gigabit optical transceiver (QSFP+). Supports single mode fiber over 1310nm wavelength. Typical reach 10 km

	SFP-GIG-LH40	1000Base-LH Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1310 nm wavelength (nominal) with an LC connector. Typical reach of 40 Km on 9/125 µm SMF.
	SFP-GIG-LH70	1000Base-LH Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1550nm wavelength (nominal) with an LC connector. Typical reach of 70 Km on 9/125 µm SMF.
	SFP-GIG-LX	1000Base-LX Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1310nm wavelength (nominal) with an LC connector. Typical reach of 10 Km on 9/125 µm SMF.
	SFP-GIG-SX	1000Base-SX Gigabit Ethernet optical transceiver (SFP MSA). Supports multimode fiber over 850nm wavelength (nominal) with an LC connector. Typical reach of 300m on 62.5/125 µm MMF or 550m on 50/125 µm MMF.
	SFP-GIG-T	1000Base-T Gigabit Ethernet Transceiver (SFP MSA) - Supports category 5, 5E, and 6 copper cabling up to 100m. SFP works at 1000 Mbit/s speed and full-duplex mode. Supports 10/100/1000 Mbit/s as well when combined with OS6850-U24X and OS6400-U24.
	SFP-GIG-EXTND	Extended 1000Base-SX Gigabit Ethernet optical transceiver (SFP MSA). Supports multimode fiber over 850nm wavelength (nominal) with an LC connector. Reach of up to 2 km on 62.5/125 µm MMF and 50/125 µm MMF. Requires SFP-GIG-EXTND or GBIC-GIG-EXTND at the remote termination.
	ISFP-10G-ER	10 Gigabit industrial optical transceiver (SFP+). Supports monomode fiber over 1550nm wavelength (nominal) with an LC connector. Typical reach of 40Km
	ISFP-10G-LR	10 Gigabit industrial optical transceiver (SFP+). Supports single mode fiber over 1310nm wavelength (nominal) with an LC connector. Typical reach of 10 Km.
	ISFP-GIG-LH40	1000Base-LH Industrial Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1310 nm wavelength (nominal) with an LC connector. Typical reach of 40 Km on 9/125 µm SMF.
	ISFP-GIG-LH70	1000Base-LH Industrial Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1550nm wavelength (nominal) with an LC connector. Typical reach of 70 Km on 9/125 µm SMF.
	ISFP-GIG-LX	1000Base-LX Industrial Gigabit Ethernet optical transceiver (SFP MSA). Supports single mode fiber over 1310nm wavelength (nominal) with an LC connector. Typical reach of 10 Km on 9/125 µm SMF.

	ISFP-GIG-SX	1000Base-SX Industrial Gigabit Ethernet optical transceiver (SFP MSA). Supports multimode fiber over 850nm wavelength (nominal) with an LC connector. Typical reach of 300m on 62.5/125 µm MMF or 550m on 50/125 µm MMF.
	ISFP-GIG-T	1000Base-T Gigabit industrial ethernet Transceiver (SFP MSA) - Supports category 5, 5E, and 6 copper cabling up to 100m. SFP supports 10/100/1000 Mbit/s and full-duplex mode.
	ISFP-GIG-EZX	Industrial grade Gigabit SFP transceiver. Supports single mode fiber, 120 km, 1550nm, LC Connector, Digital Diagnostic Monitoring (DDM), Extended Temperature -40/85C.
VitalQIP		
	300956000	VQIP Active licensing RTU, 10,000 - 24,999 IP Addresses Supported, per IP address
	300955994	VQIP Active licensing RTU, Up to 9,999 IP Addresses Supported, per IP address
	301041661	VQIP Appl 1200 ESM-HA/DR RTU, Pair (High Availability/Disaster Recovery for QIP 1200 or QIP 1200-RAID Appliance Pair)
	301087243	QIP 1210 (replaces QIP 1200. Dual power supply model includes AMM software and is convertible to AMS and/or ESM)
	301087268	QIP 1210-RAID (replaces QIP 1200-RAID. Dual power supply RAID model includes AMM software and is convertible to AMS and/or ESM)
VitalSuite		
	300982600	VITALAPPS DSKTP AGNT, PK OF 100
	300956760	VITALAPPS DSKTP AGNT, PK OF 25
	300982659	VITALAPPS MID-TIER/AUTOMON, PK OF 10
	300982576	VSUITE ADD'L 250 RTU
	300982568	VSUITE ADD'L 50 RTU
	301007423	VSUITE GENESYS CONTACT CTR STD PACK, WIN -- includes Genesys Monitoring, 10 RTU and CD-ROM for Windows. Package example: 5 Genesys Servers (Tserver or GVP or SCS), 3 IP-PBX, 5000 IP Phones, 10 switches/routers.
	301007449	VSUITE VOIP STANDARD PACK, WIN -- Includes 4 VoIP Agents (for active VoIP monitoring; SIP capable), 10 RTU, and CD-ROM for Windows. Package example: 3 IP-PBX, 6000 IP Phones.
	300955432	VitalSuite ART for 1 server with 1 or 2 CPUs, Windows only
	300589165	VitalSuite Cisco Netflow or RMON * 1 interface

	300994092	VitalSuite Genesys Contact Ctr Monitoring
	300955424	VitalSuite SIP VoiP agent stat (1 Agent)
	301065306	VitalSuite VitalFlow Base RTU. Required to enable the VitalFlow feature for Netflow and sFlow monitoring. At least 1 flow-enabled interface at 0.5 RTU must be configured to send flow records to VitalFlow server. Additional flow-enabled interfaces can be configured at 0.5 RTU each. Netflow and sFlow monitoring are part of VitalFlow. For available RTU license packages, see above.
	300960721	VitalSuite Base Server for Windows. Includes Net, Real-Time and Apps components and 1) for Net/Real-Time: a license for 1 RTU or 2) for Apps: a license for either 25 Desktop Agents or any combination of Mid-Tier Agents and Automons, up to 5 total. For RTU definitions for Net/Real-Time, please request the Vital Price Book from julie.devincentis@alcatel-lucent.com. For available RTU license packages, see below.
WAN Routers		
	OA5720-GE-SL	1 x GE WAN port activation license for OmniAccess 5720S ESR
	ESR-AIC-1E1T1	1-port E1/T1 card for OA ESR modular routers.
	ESR-AIC-1SS	1-port Sync Serial card for OA ESR modular routers.
	ESR-AIC-2SFP	2-port GE SFP card for OA ESR modular routers. Supported on OA5850 ESR and higher.
	ESR-AIC-3SS	3-port Sync Serial card for OA ESR modular routers.
	ESR-AIC-2BRI	4-port BRI card for OA ESR modular routers includes DSPs.
	ESR-AIC-4FXSFXO	4-port FXS/FXO card for OA ESR modular routers includes DSPs.
	ESR-CX21-DTE	Cable to connect to a X.21 DTE
	OA5840-SNA-SL	Data services activation license for OmniAccess 5840 ESR
	OA5850-SNA-SL	Data services activation license for OmniAccess 5850 ESR
	OA5720L-US	OA5720L ESR base model with 1xGE Serial V.35/V.24/X.21 WAN port, 4xGE LAN ports and 1xGE WAN port. Ready for 802.11bgn WLAN AP. SW licenses can be ordered separately to enable WiFi and other features.
	OA5840-H+-US	OA5840 ESR modular chassis with 3.7G for Worldwide (HSPA+ at 850/900/1900/2100 MHz, fallback to EDGE/GPRS). Ready for 802.11bgn WLAN AP. SW licenses can be ordered separately to enable WiFi and other features.

	OA5850D-US	OA5850 ESR modular chassis base model with storage. Adds to base model: 250GB HD Memory Storage for applications. Ready for 802.11bgn WLAN AP. SW licenses can be ordered separately to enable WiFi and other features.
	OA5850-US	OA5850 ESR modular chassis base model. Includes 2xGE 8xGE ports, 1 DSL slot, 2xAIC slots. Ready for WLAN 802.11bgn. SW licenses can be ordered separately to enable WiFi and other features.
	ESR-AIC-POE	PoE kit for 8 FE LAN ports for OA ESR modular routers.
	OA5840-SEC-SL	Security services activation license for OmniAccess 5840 ESR
	OA5850-SEC-SL	Security services activation license for OmniAccess 5850 ESR
	OA5840-TOIP-SL	Telephony services activation license for OmniAccess 5840 ESR
	OA5850-TOIP-SL	Telephony services activation license for OmniAccess 5850 ESR
WLAN		
	MSR1K2	MSR1200, dual 2x2 11N radio; 200mW; New Boot Loader; ROW model
	MSR4KP	MSR4000, quad 2x2 11N radio; 320mW; PoE; New Boot Loader; ROW model
	MST2HP	MST200, single 2x2 11N radio; 320mW; Int Antenna; 5GHz; PoE; New Boot Loader; ROW model
	AP-ANT-16	2.4-2.5Ghz (2.5dBi)/ 4.9-5.9GHz (3 dBi), 3 Element MIMO Antenna in a single mechanical package, Down-Tilt Omni-Directional w/ ceiling mount hardware. RP-SMA Connectors
	AP-ANT-13B	2.4-2.5Ghz (2.5dBi)/ 4.9-5.9GHz (3 dBi), Down-Tilt, Smallest Form Factor Omni-Directional Single Antenna w/ ceiling mount hardware. RP-SMA Connector
	AP-ANT-13B-KIT	2.4-2.5Ghz (2.5dBi)/ 4.9-5.9GHz (3 dBi), MIMO Kit of qty:3 individual Smallest Form Factor Down-Tilt Omni-Directional Antennas w/ ceiling mount hardware. RP-SMA Connectors.
	AP-ANT-90	2.4-2.5Ghz (3.0dBi)/ 4.90-5.99GHz (4.0dBi), Down-tilt, Omni-Directional Diversity Antenna c/w overhang mount hardware. N-Type Connector
	AP-ANT-91	2.4-2.5Ghz (5.0dBi)/ 4.90-5.99GHz (5.0dBi), Dual-band,120 Degree Sector Antenna, Ntype Male
	AP-ANT-18	2.4-2.5GHz (7.5dBi) / 5.15-5.875GHz (7.5dBi), 3 Element MIMO 60 Degree Sector Antenna. 3x 3ft pigtails, RP-SMA Connectors. Direct wall mounting hardware (anchors and screws) included; no az/el adjustment. For az/el adjustment on wall mount or pole mount order AP-ANT-MNT-1 kit in addition to antenna.
	ANT-2X2-2714	2.4GHz, 14dBi, 70°, ±45° polarized outdoor antenna with DC-grounded lightning protection, N-F connector, for all outdoor 802.11n platforms

	AP-ANT-1B	2.4Ghz-5Ghz / 2.5-5.0 dBi Tri-Band, High Gain, Omni-Directional Detachable Antenna. RP-SMA. Indoor Use Only.
	ANT-2X2-5614	5.1~5.8GHz, 14dBi, 60°, ±45° polarized outdoor antenna with DC-grounded lightning protection, N-F connector, for all outdoor 802.11n platforms
	AP-ANT-93	5.125-6.1Ghz (14.0dBi), 3 Element MIMO High-Gain 20 Degree Directional Panel Antenna, N-Type Male, Az/El mounting kit included, Cables NOT included
	ANT-2X2-5614U	5.5-5.9GHz, 14.0dBi, 60°, ±45° polarized 2 Element MIMO High-Gain Directional Panel Antenna, 2x N-Type Female connectors, Cables NOT included
	AP-ANT-MNT-1	Azimuth and Elevation adjustable Mount Kit for AP-ANT-17 and AP-ANT-92.
	ANT-2X2-D805	Dual Band, 120 Degree Sector, 5 dBi, ±45 Polarization, 2 Element MIMO, 2x 3ft pigtails, N-type connectors.
	ANT-2X2-D607	Dual Band, 60 Degree Sector, 7 dBi, ±45 Polarization, 2 Element MIMO, 2x 3ft pigtails, N-type connectors.
	AP-ANT-19	Dual Band, Omnidirectional 3dBi/6dBi, Indoor/Outdoor, RPSMA connector with 36 inch integrated pigtail cable. Pole mount, I-beam, and ceiling tile mount hardware included.
	AP-ANT-19-KIT	Dual Band, Omnidirectional 3dBi/6dBi, Indoor/Outdoor, RPSMA connector with 36 inch integrated pigtail cable. Pole mount, I-beam, and ceiling tile mount hardware included. (Kit of 3)
	AP-ANT-17	MIMO 120 Degree Sector Antenna, 5 dBi, Dual Band 2.4&5 GHz with quantity (3) 36 inch pigtail coax cables for direct use with AP12x. Indoor Version. Wall mount hardware only included no Az/El adjustment.
	AP-ANT-92	MIMO 120 Degree Sector Antenna, 5 dBi, Dual Band 2.4&5 GHz with quantity (3) 36 inch pigtail coax cables for direct use with AP12x. Outdoor Version. Wall mount hardware only included no Az/El adjustment.
	ANT-2X2-L214	OAW WLAN 30°x30° Sector Ant FOR 2.4 to 2.5 GHz, 14 dBi
	ANT-2X2-L514	OAW WLAN 30°x30° Sector Ant FOR 5.15 to 5.875 GHz, 14 dBi
	ANT-2X2-5614L	OmniAccess 4.9-5.5GHz, 14dBi, 60°, ±45° polarized outdoor antenna with DC-grounded lightning protection, N-F connector, for all outdoor 802.11n platforms
	OAW-AP-CBL-1	Outdoor Antenna Cable Extension. 10' long low-loss LMR 400 antenna extension cable for use with the OAW-AP85 Outdoor Access Point, interfaces N-Type Female interface to N-Type Male on antenna.

	AP-LAR-24	Outdoor Antenna Lightning Arrestor for outdoor Access Points: Single, In-line lightning arrester with N-type Male to N-type Female interface. Supports RF frequency Passband of 2.4-2.5 GHz
	OAW-AP-LAR-1	Outdoor Antenna Lightning Arrestor. Lightning Surge Arrestor for the OAW-AP85 Access Points: Single, In-line lightening arrester with N-type Male to Ntype Female interface. Supports RF frequency pass through of 2Ghz - 6Ghz.
	ANT-2X2-2005	Pair (H/V Polarization) 2.4GHz, Omni-directional, 5dBi, Direct-mount, N-type connectors. Pole mount, I-beam, and ceiling tile mount hardware included. Requires N-male to N-female extension cable if not used in direct mount.
	ANT-2X2-5010	Pair (H/V Polarization) 5GHz, Omni-directional, 10dBi, Direct-mount, N-type connector. Pole mount, I-beam, and ceiling tile mount hardware included. Requires N-male to N-female extension cable if not used in direct mount.
	ANT-2X2-5005	Pair (H/V Polarization) 5GHz, Omni-directional, 5dBi, Direct-mount, N-type connectors. Pole mount, I-beam, and ceiling tile mount hardware included. Requires N-male to N-female extension cable if not used in direct mount.
	ANT-2X2-STAGE	Set of 2 dual band staging antennas with N-type/male connectors (direct-mount, articulating).
	OAW-4306G-0	OmniAccess 4306G WLAN switch with UNRESTRICTED REGULATORY DOMAIN. Provides 6 auto-sensing 10/100/1000Base-T (RJ-45) interfaces including 4 Power Over Ethernet (PoE) capable ports, 2x 1000Base-X (SFP) ports and 4x USB ports. Supports up to 16 OmniAccess APxx Access Points (AP licenses required) directly or remotely connected through a Layer 2 or Layer 3 network. Includes Country Specific power cord.
	OAW-4704-PEFV	Policy Enforcement Firewall Module for the OAW-4704 (VIA/VPN termination point)
	OAW-6000-PS4	OmniAccess 6000 Chassis for PoE and Supervisor III configurations. Includes one modular 4-Slot 19" Chassis, one fan tray, two 400 Watt Auto-sensing 110V/240V AC PSU and an accessory kit. Chassis EEPROM with UNRESTRICTED REGULATORY DOMAIN for deployments outside the United States and Israel. Includes Country Specific power cords.
	OAW-S3-0-2X10G	OmniAccess Supervisor Card III , 10x 1000Base-X (SFP), 2x 10GBase-X (XFP), (no AP license included). One OAW-6000 Chassis can accommodate up to four (4) Supervisor Card III.
	OAW-4306G-PEFV	Policy Enforcement Firewall Module for the OAW-4306G (VIA/VPN termination point)

	OAW-4704-0	OmniAccess 4704 WLAN switch with UNRESTRICTED REGULATORY DOMAIN. Provides 4 auto-sensing 10/100/1000BaseT (RJ-45) or 1000Base-X (SFP) dual personality ports. Supports up to 128 OmniAccess APxx Access Points, (AP licenses required) directly or remotely connected through a Layer 2 or Layer 3 network. Includes Country Specific power cord.
	OAW-AP-LAP1024	Access Point License (1024 Access Point License)
	OAW-AP-LAP128	Access Point License (128 Access Point License)
	OAW-AP-LAP16	Access Point License (16 Access Point License)
	OAW-AP-LAP512	Access Point License (512 Access Point License)
	OAW-SSN-ACR1024	Advanced Cryptography License (1024 Sessions)
	OAW-APPEFNG1024	Policy Enforcement Firewall Module (1024 AP License)
	OAW-AP-PEFNG128	Policy Enforcement Firewall Module (128 AP License)
	OAW-AP-PEFNG16	Policy Enforcement Firewall Module (16 AP License)
	OAW-AP-PEFNG512	Policy Enforcement Firewall Module (512 AP License)
	OAW-S3-PEFV	Policy Enforcement Firewall Module for the Supervisor 3 (VIA/VPN termination point)
	OAW-AP-RFP1024	RF Protect License including WIP and Spectrum (1024 AP Support)
	OAW-AP-RFP128	RF Protect License including WIP and Spectrum (128 AP Support)
	OAW-AP-RFP16	RF Protect License including WIP and Spectrum (16 AP Support)
	OAW-AP-RFP512	RF Protect License including WIP and Spectrum (512 AP Support)
	OAW-SSN-XSC128	xSec Module License (128 Sessions)
	OAW-SSN-XSC2048	xSec Module License (2048 Sessions)
	OAW-SSN-XSC8192	xSec Module License (8192 Sessions)
	OAW-MS-3501G	1 Port 802.3af PoE Midspan 10/100/1000 15.4W. No power cord included.
	OAW-MS-9001G	1 Port 802.3at POE Midspan 10/100/1000 30W. No power cord included.
	OAW-AP-DC-CAR	12VDC Car Power Adapter Kit for compatible OmniAccess Access Point models
	AP-ANT-1F	AP Antenna with integrated cellular interference filter, 2.4-2.5GHz (2.0dBi) / 4.9-5.875GHz (5.0dBi), Omni-Directional Direct-Mount Antenna. RP-SMA Connector
	OAW-AINS2KKIT00	Includes accessories that may be useful in the installation process: two electrical tape rolls, mastic tape, white tie wraps.
	PD-9001GR-AC	OAW WLAN 1 Port 802.3at PoE Midspan 10/100/1000 30W

	OAW-AP105-MNTD	OAW-AP105 Access Point Mounting Kit (contains 2 brackets for flat surface or wall box mounting; DC power connector accessible).
	OAW-AP130-MNTC2	OAW-AP130 SERIES CEILING RAIL MOUNT KIT V2
	OAW-AP130-MNTW2	OAW-AP130 SERIES WALL MOUNT KIT V2
	OAW-AP-AC2-ZA	OAW-AP60/61/65/70/120 Series AC Power Adapter Kit - South Africa
	OAW-PD9001GOINT	OmniAccess 1 Port 802.3at PoE Midspan 10/100/1000 30W Outdoor; EU/International power cord
	OAW-AP105-MNTC	OmniAccess AP105 Ceiling Mounting Kit (rail adapters only)
	OAW-AP105-MNT	OmniAccess AP105 Mounting Kit for flat surfaces or wall boxes (note: covers DC power interface).
	OAW-CBL-ACINTL	OmniAccess OUTDOOR CABLE ASSEMBLY (AC, INTL) Weatherproof cable assembly to connect to (metal) AC power interface on OmniAccess OUTDOOR AP models (length: 5m). International (EU) version
	OAW-CBL-ACNA	OmniAccess OUTDOOR CABLE ASSEMBLY (AC, NA) Weatherproof cable assembly to connect to (metal) AC power interface on OmniAccess OUTDOOR AP models (length: 3m). North America version
	OAW-CBL-DCWW	OmniAccess OUTDOOR CABLE ASSEMBLY (DC) Weatherproof cable assembly to connect to (metal) DC power interface on OmniAccess OUTDOOR AP models (length: 5m)
	OAW-CBL-USBM	OmniAccess OUTDOOR CABLE ASSEMBLY (USB, METAL) Weatherproof cable assembly to connect to (metal) USB interface on OmniAccess OUTDOOR AP models (length: 5m)
	OAW-CBL-USBP	OmniAccess OUTDOOR CABLE ASSEMBLY (USB, PLASTIC) Weatherproof cable assembly to connect to (plastic) USB interface on OmniAccess OUTDOOR AP models (length: 5m)
	OAW-CKIT-ACM	OmniAccess OUTDOOR CONNECTOR KIT (AC, METAL) Kit with weatherproof connector assembly to attach cable to (metal) AC power interface on OmniAccess OUTDOOR AP models
	OAW-CKIT-DCM	OmniAccess OUTDOOR CONNECTOR KIT (DC, METAL) Kit with weatherproof connector assembly to attach cable to (metal) DC power interface on OmniAccess OUTDOOR AP models
	OAW-CKIT-RJ45M	OmniAccess OUTDOOR CONNECTOR KIT (RJ45, METAL) Kit with weatherproof connector assembly to attach cable to (metal) RJ45 interface on OmniAccess OUTDOOR AP models
	OAW-CKIT-RJ45P	OmniAccess OUTDOOR CONNECTOR KIT (RJ45, PLASTIC) Kit with weatherproof connector assembly to attach cable to (plastic) RJ45 interface on OmniAccess OUTDOOR AP models
	OAW-PDMOUNTOD	OmniAccess Pole / Mast mount kit for outdoor POE midspan injectors
	OAW-AP-CBL-SER	OmniAccess RAP3 Series serial adapter cable (proprietary to DB9 female)

	OAW-RAP3WN-MNT	OmniAccess RAP3WN Series Wall Mount Kit
	OAW-AP-AC-12V18	OmniAccess12VDC/18W AC Power Adapter for compatible indoor AP models. Does not include country specific power cord.
	OAW-AP130-MNT	OmniAcess AP130 Series Access Point Wall / Ceiling Mounting Kit
	OAW-AETHGEL0500	Shielded ethernet cable with Rj45 connectors, 5 meters, apply to all indoor and outdoor products
	OAW-ACONGESTD00	USB console cable, 1.5 meters,apply to all indoor and outdoor products
	OAW-AP104	OmniAccess AP104 Wireless Access Point (802.11abgn 2x2:2, dual radio, antenna connectors) - need external antenna
	OAW-AP105	OmniAccess AP105 wireless access point. Dual radio IEEE 802.11a/b/g/n wireless access point with support for 802.11'B/G/N' and 802.11'A/N' operation, dual-band integral antenna, 1 x 10/100/1000Base-T (RJ-45) Ethernet Interface (Supports 802.3af Power over Ethernet), 1 x 12V DC power interface. AC power adapter kit (OAW-AP-AC-UN) sold separately.
	OAW-AP134	OmniAccess AP134 Wireless Access Point, 802.11abgn, 3x3:3, dual radio, external antenna connectors.
	OAW-AP135	OmniAccess AP135 Wireless Access Point, 802.11abgn, 3x3:3, dual radio, integrated antennas.
	OAW-AP175POE	OmniAccess AP175POE outdoor access point designed for high-density applications. Supports 802.11a/n and 802.11b/g/n. 2x2 MIMO with two spatial streams, providing up to 300 Mbps data rate per radio. Supports one 10/100 Base-T (RJ-45) Ethernet interface supporting 48-volt DC 802.3at power over Ethernet (PoE+). 4 N-type female interfaces (2 x 2.4 GHz, 2 x 5 GHz) for external antenna support. Wall or poll mounted using the mounting bracket supplied with the unit; solar shield included.
	OAW-IAP134	OmniAccess Instant AP134 Wireless Access Point, 802.11abgn, 3x3:3, dual radio, antenna connectors. Requires external antenna. Unrestricted Regulatory Domain. These products should be considered as `Rest of World¿ products and MUST NOT be used for deployments in the United States, Japan or Israel
	OAW-IAP135	OmniAccess Instant AP135 Wireless Access Point, 802.11abgn, 3x3:3, dual radio, integrated antennas. Unrestricted Regulatory Domain. These products should be considered as `Rest of World¿ products and MUST NOT be used for deployments in the United States, Japan or Israel

	OAW-RAP3WN	OmniAccess RAP3 Instant Access Point (wireless, 3x10/100Base-T, USB). Unrestricted Regulatory Domain. These products should be considered as `Rest of World¿ products and MUST NOT be used for deployments in the United States, Japan or Israel. Ships with IAP software but can easily be converted to RAP.
	OAW-RAP3WNP	OmniAccess RAP3P Instant Access Point (wireless, 3x10/100Base-T, USB, POE out). Unrestricted Regulatory Domain. These products should be considered as `Rest of World¿ products and MUST NOT be used for deployments in the United States, Japan or Israel. Ships with IAP software but can easily be converted to RAP.
	OAW-RAP2WG	OmniAccess RAP2WG remote access point with single radio 802.11'B/G', integrated antenna, 2 x 10/100Base-T (RJ-45), 1 x Universal 12V AC power adapter, 1x 6ft Ethernet cable and Installation Guide.
5620 SAM		
	3HE00981LA	5620 SAM-E R10 Base Product for Solaris. Order this part number to receive the 5620 SAM-E Base Product for Solaris, which includes: Primary SAM Server, 5 SAM Operator Positions and license to run SAM Database (Oracle) on a platform with up to 2 x mono core UltraSPARC III Processor or 1 x dual core UltraSPARC IV Processor or 2 x dual core AMD Processors or 1 x quad core or 1 hex core AMD Processor.
	3HE00205LA	This kit contains: Qty: 3 DVD-ROMs which contain Release 10 software for the full SAM suite (SAM-E/A/P/O) and on-line documentation (User Guide, OSS Developer Guide and Installation Guide, etc) DVD-ROM Notes: a) Includes SAM Server/Database software for Sun Solaris OS. b) Includes SAM Client software (installed on every Operator Position) for Windows, Sun Solaris, and Linux Redhat OS.
	3HE06905LA	5620 SAM E/A/P License for R10 for Alcatel-lucent AOS OmniSwitch OS10K-GNI Network Interface Series Notes: (1) One license is required for each OS10K-GNI Network interface modules installed in any OS10K chassis. (2) This product is a bundle that includes one license for SAM-E, SAM-A and SAM-P. (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.

	3HE06906LA	5620 SAM E/A/P License for R10 for Alcatel-lucent AOS OmniSwitch OS10K-XNI Network Interface Series Notes: (1) One license is required for each OS10K-XNI Network interface modules installed in any OS10K chassis. (2) This product is a bundle that includes one license for SAM-E, SAM-A and SAM-P. (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.
	3HE04840LA	5620 SAM E/A/P License for R10 for Alcatel-lucent AOS OmniSwitch OS9-GNI Network Interface Series Notes: (1) One license is required for each OS9-GNI Network interface modules installed in any OS9600/OS9700/OS9800/OS9700E/OS9800E chassis. (2) This product is a bundle that includes one license for SAM-E, SAM-A and SAM-P. (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.
	3HE04058LA	5620 SAM E/A/P R10 License- for Alcatel-lucent AOS OmniSwitch 6850 & 6850E Series Notes: (1) One license is required for each AOS OmniSwitch 6850 or 6850E unit. (2) This license covers all models of AOS 6850 & 6850E Series (see comments column for more data) (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.
	3HE04353LA	5620 SAM E/A/P R10 License- for Alcatel-lucent AOS OmniSwitch 6855 Series Notes: (1) One license is required for each AOS OmniSwitch 6855 unit. (2) This license covers all models of AOS 6855 Series (see comments column for more data) (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.
	3HE06918LA	5620 SAM E/A/P R10 License- for Alcatel-lucent AOS OmniSwitch 6900-X20 Series Notes: (1) One license is required for each AOS OmniSwitch 6900-X20 Series unit. (2) This license covers all models of AOS 6900-X20 Series (see comments column for more data) (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.
	3HE06904LA	5620 SAM E/A/P R10 License- for Alcatel-lucent AOS OmniSwitch 6900-X40 Series Notes: (1) One license is required for each AOS OmniSwitch 6900-X40 unit. (2) This license covers all models of AOS 6900-X40 Series (see comments column for more data) (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.

	3HE04841LA	5620 SAM-E/A/P License for R10 for Alcatel-lucent AOS OmniSwitch OS9-XNI Network Interface Series Notes: (1) One license is required for each OS9-XNI 10 Gigabit Network interface modules installed in any OS9600/OS9700/OS9800 chassis & in any OS970xE/OS980xE. (2) This product includes one license for SAM-E, SAM-A and SAM-P. (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.
	3HE01550LA	5620 SAM-E/A/P R10 License - for any Alcatel 7710/7750 SR c4 or 12 Compact Media Adapter (CMA) including XP CMA. Notes: (1) One license is required for each CMA in the system. (2) This product is a bundle that includes one license for SAM-E, SAM-A and SAM-P. (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.
	3HE00756LA	5620 SAM-E/A/P R10 License - for any Alcatel 7750/7710 Series Router MDA. Notes: (1) One license is required for each 7750/7710 MDA in the system. (2) This product is a bundle that includes one license for SAM-E, SAM-A and SAM-P. (3) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM. This P/N is not to be used for 5620 SAM-E/A/P R10 CMAs.
	3HE04331LA	5620 SAM-E/A/P R10 License - for any Alcatel 7750/7710 Series Router Premium MDA.
8950 AAA		
	AAA-EP-10000	8950 AAA RTU base license for 10 000 users/devices for Enterprise customers only. This item can be loaded on one server and is specific to the server's IP address. Each license is also limited to PolicyAssistant mode only.
	AAA-EP-50000	8950 AAA RTU base license for 50 000 users/devices for Enterprise customers. This item can be loaded on one server and is specific to the server's IP address. Each license is also limited to PolicyAssistant mode only.
	AAA-EPA-1000	8950 AAA RTU license for 1000 additional users/devices for Enterprise customers only. This item can be loaded on one server and is specific to the server's IP address. Each license is also limited to PolicyAssistant mode only.
	AAA-EPHA-10000	This item adds a license to configure a second redundant server for the 8950 AAA RTU license for 10 000 users/devices. This license only applies to enterprise customers.

	AAA-EPHA-50000	This item adds a license to configure a second redundant server for the 8950 AAA RTU license for 50 000 users/devices. This license only applies to enterprise customers.
	AAA-EPAHA-1000	This item adds a license to configure a second redundant server for the 8950 AAA RTU license for the additional 1000 users/devices. This license only applies to enterprise customers.
	AAA-EP-TACACS+	This item describes the 8950 AAA RTU license for TACACS+ support. This license only applies to enterprise customers.
	AAA-EP-PFUNLCK	This item describes the 8950 AAA RTU license to allow customers to create their own Policy Flow. This does not allow for the policy assistant to be modified. This license only applies to enterprise customers.
Airtight		
	PS-T-SE-OS-1	Five day on-site training (travel & expense additional)
	SS-PoE-AT	One port 802.3af PoE injector for SpectraGuard Sensors; compatible with Y-cable splitter.
	SS-300-AT-C-50	Single radio, dual-band SpectraGuard AP/Sensor that can be used for dedicated monitoring of 2.4 and 5 GHz frequency bands or as a Wi-Fi AP with background scanning and threat mitigation. Comes with internal antennas and connectors for external antennas; 802.3af PoE compliant.
	SE-SW-VM-50	SpectraGuard Enterprise Virtual Server bundle that works with VMWare vSphere or ESx server, and can support up to 600 SpectraGuard Sensors. Includes license for 50 Sensors. VMWare licenses NOT included.
	SE-UL-50-STD	Standard 50 Sensor WIPS license upgrade for SA-250, SA-350 and SA-SW-HP-ZL 50.
CyberGateKeeper		
	CGADOSINT-01000	CyberGatekeeper Agent from 1000 to 2499 seats. A MAINTENANCE CONTRACT (CGAD-OS-INT-01000-SPM) MUST BE PURCHASED WITH THIS PART.
	CGADOSINT-00050	CyberGatekeeper Agent from 50 to 99 seats. A MAINTENANCE CONTRACT (CGAD-OS-INT-00050-SPM) MUST BE PURCHASED WITH THIS PART.
	CGAD-00050	MINIMUM PURCHASE IS 50 AGENTS. Price for each CyberGatekeeper Agent license when purchasing from 50 to 99 licenses. Computers supported include Windows, Linux and MAC. A MAINTENANCE CONTRACT (CGAD-00050-SPM) MUST BE PURCHASED WITH THIS PART.
	CGAD-01000	Price for each CyberGatekeeper Agent license when purchasing from 1000 to 2499 licenses. Computers supported include Windows, Linux and MAC. A MAINTENANCE CONTRACT (CGAD-01000-SPM) MUST BE PURCHASED WITH THIS PART.

	CGSL1P	CyberGatekeeper 1U appliance and software license (hardware included). Also includes CyberGatekeeper Policy Manager and Reporting Server software license. A MAINTENANCE CONTRACT (CGSL1P-SPM) MUST BE PURCHASED WITH THIS PART.
	CGSR1F	Fail-Open CyberGatekeeper 1U Remote (in-line) appliance and software license (hardware included). Also includes CyberGatekeeper Policy Manager and Reporting Server software license. A MAINTENANCE CONTRACT (CGSR1F-SPM) MUST BE PURCHASED WITH THIS PART.
	CGSR1R	Redundant CyberGatekeeper 1U Remote (in-line) appliance and software license (hardware included). A MAINTENANCE CONTRACT (CGSR1R-SPM) MUST BE PURCHASED WITH THIS PART.
	CG800012-00	1 Yr CyberGatekeeper 1U REMOTE Redundant Server Platinum Maintenance Support,provides 8x5 support and all software upgrades (CGSR1R-SPM)
	CG800010-00	1 Yr CyberGatekeeper 1U REMOTE Server Platinum Maintenance Support provides 8x5 support and all software upgrades. (CGSR1F-SPM)
	CG800008-00	1 Yr CyberGatekeeper 1U Server Platinum Maintenance Support provides 8x5 support and all software upgrades.(CGSL1P-SPM)
	CG800003-00	1 Yr CyberGatekeeper Agent Platinum Maintenance from 1000 to 2499 seats. INCLUDES: One year maintenance releases (e.g. 4.4 to 4.41), minor product releases (e.g. 4.3 to 4.4), major releases (e.g. 4.4 to 5.0), and email support, (6 AM - 6 PM PST Monday-Friday, excluding holidays). Typical response time is under four hours during normal support hours.(CGAD-01000-SPM)
	CG800000-00	1 Yr CyberGatekeeper Agent Platinum Maintenance from 50 to 99 seats INCLUDES: One year maintenance releases (e.g. 4.4 to 4.41), minor product releases (e.g. 4.3 to 4.4), major releases (e.g. 4.4 to 5.0), and email support, (6 AM - 6 PM PST Monday-Friday, excluding holidays). Typical response time is under four hours during normal support hours. (CGAD-00050-SPM)
	CG800014-00	1 Yr CYBERGATEKEEPER for Alcatel-Lucent data integration deployments, 50-99 (CGAD-OS-INT-00050-SPM)
	CG800017-00	1 Yr CYBERGATEKEEPER for Alcatel-Lucent data integration deployments,1000-2499 (CGAD-OS-INT-01000-SPM)
Fortinet		

	FAZ4000B	FORTIANALYZER 4000B - Six (6) removable 1TB HDD, up to 6000 logs/sec, up to 2000 devices (any FortiGate model), rack mountable. A MAINTENANCE CONTRACT MUST BE PURCHASED WITH THIS REFERENCE (SEE SERVICE AND SUPPORT SECTION FOR DETAILS). ADD NON-US POWER CORD FROM FORTINET-ACCESSORIES IF NEEDED. (FAZ-4000B)
	FG300CBDL95036	FG-300C Hardware plus 3 year 24X7 Forticare and FortiGuard Bundle
	FG300CBDL90036	FG-300C Hardware plus 3 year 8x5 Forticare and FortiGuard Bundle
	FG200BBDL95036	FORITGATE 200B Bundle - 8 10/100 and 4 10/100/1000 ports and FortiASIC NP2-Accelerated Interfaces, includes rack mount kit. Bundle includes Hardware Unit, Advance Replacement, Firmware Upgrades, 7x24x36 months Comprehensive Support, AntiVirus, IPS, Contect Filtering and Anti-Spam. See Bundle upgrades for other options. ADD NON-US POWER CORD FROM FORTINET-ACCESSORIES IF NEEDED. (FG-200B-BDL-950-36)
	FG200BBDL90036	FORITGATE 200B Bundle - 8 10/100 and 4 10/100/1000 ports and FortiASIC NP2-Accelerated Interfaces, includes rack mount kit. Bundle includes Hardware Unit, Return and Replace, Firmware Upgrades, 8x5x36 months Enhanced Support, AntiVirus, IPS, Contect Filtering and Anti-Spam. See Bundle upgrades for other options. ADD NON-US POWER CORD FROM FORTINET-ACCESSORIES IF NEEDED. (FG-200B-BDL-900-36)
	FG1000CBDL95036	FORTIGATE 1000C BUNDLE Hardware plus 3 year 24x7 Forticare and FortiGuard Bundle (FG-1000C-BDL-950-36)
	FG1000CBDL90036	FORTIGATE 1000C BUNDLE Hardware plus 3 year 8x5 Forticare and FortiGuard Bundle (FG-1000C-BDL-900-36)
	FG3240CBDL90036	FORTIGATE 3240C DC BUNDLE - 12 SFP+ FortiASIC 10-Gig ports (2 SFP+ SR-type transceivers included) , 16 SFP FortiASIC ports, 2 10/100/1000 ports, 1 SSD 64GB internal storage, and dual AC power supplies and 3 year 8x5 Forticare and FortiGuard Bundle. (FG-3240C-BDL-900-36)
	FG3950BBDL90036	FORTIGATE 3950B BUNDLE - 2 SFP+ 10-Gig ports (2 SFP+ SR-type transceivers included), 4 SFP 10/100/1000 FortiASIC accelerated ports, 2 10/100/1000 ports, 5 FMC slots, and dual AC power supplies. ADD NON-US POWER CORD FROM FORTINET-ACCESSORIES IF NEEDED. (FG-3950B-BDL-900-36)

	FG3950BBDL95036	FORTIGATE 3950B BUNDLE - 2 SFP+ 10-Gig ports (2 SFP+ SR-type transceivers included), 4 SFP 10/100/1000 FortiASIC accelerated ports, 2 10/100/1000 ports, 5 FMC slots, and dual AC power supplies. Bundle includes Hardware Unit, Advance Replacement, Firmware Upgrades, 7x24x36 months Comprehensive Support, AntiVirus, IPS, Contect Filtering and Anti-Spam. ADD NON-US POWER CORD FROM FORTINET-ACCESSORIES IF NEEDED. (FG-3950B-BDL-950-36)
	FMCC20	FORTIGATE MODULE - Firewall module, 20 10/100/1000 ports (FMC-C20)
	FMCF20	FORTIGATE MODULE - Firewall module, 20 1-Gig SFP ports, includes 4 SX SFP transceivers (FMC-F20)
	FMCXD2	FORTIGATE MODULE - FMC-XD2 Firewall module, 2 10-Gig SFP+ ports, includes 2 SR SFP+ transceivers. (FMC-XD2)
	FMCXG2	FORTIGATE MODULE - FMC-XG2 Security Processing Module (SP2) acceleration, 2 10-Gig SFP+ ports, includes 2 SR SFP+ transceivers. (FMC-XG2)
	FMCXH0	FORTIGATE MODULE - FMC-XH0 Security Processing Module (SP3), no external interfaces. (FMC-XH0)
	FSM064	FSM MODULE - Fortinet Storage Module (FSM), 64 GB Solid State Drive for FortiGate with FSM slot. (FSM-064)
	FC800691-36	3 Yrs 8x5 Enhanced FortiCare for FortiAnalizer-4000B (FC-10-L4002-311-02-36)
MPLS		
	3HE05789LA	5620 SAM-E/A/P R10 License for 7210 SAS-M-24F2XFP. Notes: (1) One License is required for each 7210 SAS-M-24F2XFP Chassis. (2) This license applies to the Extended temperature range chassis (ETR) as well
	3HE05790LA	5620 SAM-E/A/P R10 License for 7210 SAS-X-24F2XFP. Notes: (1) One License is required for each 7210 SAS-X-24F2XFP Chassis.
	3HE05791LA	5620 SAM-E/A/P R10 License - for Alcatel 7210 SAS-4xT1/E1 CES Module or 7210 SAS-2x10G MDA Module.Notes: (1) This product is a bundle that includes one license for SAM-E, SAM-A and SAM-P. (2) For a first time deployment of the 5620 SAM, please refer to the DVD-ROM Media kit description for a listing of all required components to run 5620 SAM.

	3HE07421LA	5620 SAM-E/A/P R10 - Additional License for 7705 SAR- PASSIVE MDA's. The following MDAs are considered Passive: Power Injector Card (PIC), 1 Colour Optical Add/Drop Mux (OADM), 2 Colour Optical Add/Drop Mux (OADM), 4 Colour Optical Add/Drop Mux (OADM), 8 Colour Optical Add/Drop Mux (OADM)
	3HE03605LA	5620 SAM-E/A/P R10 - Additional License for 7705 SAR-8/18 MDAs.
	3HE06551LA	5620 SAM-E/A/P R10 - Additional License for 7705 SAR-8/18 XMDAs.
	3HE03603LA	5620 SAM-E/A/P R10 License for 7705 SAR-8 Chassis with 2 MDAs and this could either be a Standard MDA or XMDA. Customer/Account Team must request the correct MDA type (XMDA or Standard) for licensing.Notes: (1) One License is required for each 7705 SAR-8 Chassis. (2) For additional 7705 SAR-8/18 Standard MDAs order P/N# 3HE03605LA. (3) For additional 7705 SAR8/18 XMDA order P/N# 3HE06551LA.
	3HE06889LA	5620 SAM-E/A/P R10 License for 7705 SAR-M 1RU equipped with 16 T1/E1 ASAP, 7 10/100/1000 Mbps Ethernet ports (4 SFP/3 RJ45) and pluggable module slot. Notes: (1) One License is required for each 7705 SAR-M which includes plug in module. (2) License supports both SAR-M with or without fans in 16 T1/E1 ASAP + 7 GigE configurations.
	3HE06891LA	5620 SAM-E/A/P R10 License for 7705 SAR-M 1RU equipped with 7 10/100/1000 Mbps Ethernet ports (4 SFP/3 RJ45) and pluggable module slot. Notes: (1) One License is required for each 7705 SAR-M which includes plug in module. (2) License supports both SAR-M with or without fans in 16 7 GigE configurations.
	3HE02784EA	SAR Release 5.0 OS License. One (1) OS License is required for each SAR-8, SAR-F, SAR-M or SAR-ME in the network.
	3HE03391AA	12 port serial data card. Supports V.35, RS232 and X.21 protocols.
	3HE02775AA	16-port Channelized/Unchannelized T1/E1 Any Service Any Port (ASAP) Card, supports channelization down to DS0 and ATM/PPP/TDM encapsulations. Each port can be independently configured for the different services and can be used for access or network ports. -48VDC
	3HE03127AA	2-port OC3/STM1 Card, with channelization down to DS0 and ATM/PPP/TDM encapsulations. Each port can be independently configured for the different services and access/network. SFPs sold separately. -48VDC
	3HE03125AA	4-port OC3/STM1 Clear Channel Card, supporting ATM services and POS network links. Includes 4 SFP cages for interfaces. Each port can be used for access or network ports. SFPs sold separately. -48VDC

	3HE03126AA	6 port E&M analog voice interface card configurable for 2 or 4 wire operation. Supports Type I, II and V signaling and A-law and ¿-Law encoding. 600ohm interface with programmable TLP ranges.
	3HE06006AA	8 port multi-function card with 2 x FXS and 2 x FXO ports for analog voice, 2 x G.703 co-directional ports and 2 x C37.94 optical teleprotection ports. -48VDC
	3HE02776AB	8-port Ethernet Card. This card has 2 10/100/1000 Ethernet SFP ports and 6 10/100 Ethernet RJ45 ports. It has support for Ethernet/VLAN services including Synchronous Ethernet and IEEE1588v2. Each port can be used for access or network ports. SFPs sold separately. -48VDC
	3HE02774AA	SAR Control and Switch Module 8 Gbps. One (1) required per SAR 4 slot or 8 slots shelf or up to two (2) per SAR Shelf for CPU and fabric redundancy. -48VDC
	3HE02772AA	The Auxiliary Alarm Card provides additional alarm support for high density digital inputs and outputs, as well as 2 analog inputs. Access to all the signal pins is via the AMP 68 pin connector. The 16 AWG open-ended cables of 15 and 30 meters length (3HE03398AB/3HE03399AB), as well as the SCSI to AMP 64 pin cable (3HE02783AA), can be used in conjunction with this card. This card is supported in both -48 VDC and +24 VDC systems.
	3HE05838AA	250W power adapter brick converting 120/240V AC to -48V DC. Requires separate pigtail for specific 7705 products.
	3HE02781AA	32-port Channelized/Unchannelized T1/E1 Any Service Any Port (ASAP) Card, supports channelization down to DS0 and ATM/PPP/TDM encapsulations. Each port can be independently configured for the different services and can be used for access or network ports.This card is supported in both -48 VDC and +24 VDC systems.
	3HE04430AA	Breakout panel with 32 E1 75 Ohm 1.0/2.3 ports for up to two 16 port T1/E1 ASAP cards. (3HE02775AA)
	3HE04512AA	Breakout panel with 6 DB15 connectors for X.21 access. Requires 3HE04508AB X.21 Cable to connect to the Serial Data Interface card
	3HE04508AB	Connects Serial Data Interface card to 3HE04512AA X.21 Distribution Panel. Supports 6 data ports.. Each Serial Data Interface Card can support two cables. 2 meters in length
	3HE06792AA	SAR-8 Shelf v2 Fan Module with Extended Temperature Range (-48VDC)
	3HE06791AA	SAR-8 Shelf V2 that accepts redundant DC-power feeds and up to 2 CSMs (V1 or V2) and up to 6 interface cards. Fan Module must be version associated with this V2 shelf. 6 Blanking plates included.

	3HE03397AA	This cable connects the 16 port T1/E1 ASAP card to a breakout panel. SCSI connector at both ends. 1 meter in length.
	3HE05837BA	Used to connect 3HE05838AA 250W 120/240V AC power converter to 7705 shelves equipped with O-ring connector blocks
	3HE05051AB	1RU SAR-M with 1 modular position configuration with redundant universal (-48V/+24V) DC power feeds. Node has 16 T1/E1 ASAP and 7 10/100/1000 Mbps Ethernet ports (4 SFP/3 RJ45) and built-in Control/Switch functionality. OS license is sold separately.
	3HE05126AA	Expansion module containing a single GPON port SFF uplink with Gigabit Ethernet throughput. Support for GPON Phy layer synchronization. Environmentally hardened.
	3HE05914AA	Expansion module supporting 4-pair G.SHDSL EFM bonding and 2-pair xDSL (ADSL2/ADSL2+/VDSL2) with ATM and PTM bonding. Supports NTR over SHDSL and xDSL. Environmentally hardened. Module supports 6 RJ-11 connectors.
	3HE05577AA	Expansion module supporting 8-pair ADSL2/ADSL2+/VDSL2 PTM bonding and 2-pair ADSL2/2+ ATM bonding. Supports NTR over xDSL. Environmentally hardened. Module supports 8 RJ-11 connectors.
	3HE05589AA	7210 SAS-M 24F2XFP MPLS Extended Temperature Range AC system includes; (1) 7210 SAS AC Power Supply, 1 Fan Tray , 7210 SAS Operating Software R3.0 Accepts 24 x 100/1000 SFP(s) and 2 XFP(s)
	3HE06574AA	7750 SR 7-Slot Chassis with 7750 SR-7 100 Amp Power Filters/PEM-3's and 7750 SR-7 Enhanced Fan Tray + 7750 SR SFM4 Bundle. Bundle Includes: 7750 SR-7-Slot DC Integrated Chassis (3HE00272DB) with redundant 7750 SR-7 100 Amp Power Filters & 100 Amp DC PEM-3's, Reduced Depth - Enhanced Fan Tray (1), Impedance Panels (5) and Fan Filter (1). Non-Redundant (1) 7750 SR SFM4 (3HE05949AA).
	3HE04710AA	7750 SR-c12 Chassis (3HE01016BA x1), 7750 SR-c12 HF Fan Tray (3HE03660AA x1), CFM - 7750 SR-c12 CFM-XP (3HE03607AA x1), 7750 SR-c12 CCM-XP (3HE04580AA x1), 7750 SR-c12 AC PEM-3 (3HE03658AA x2)
	3HE04580AA	7750 SR-c12 Chassis Control Module-XP (CCM-XP) for external system interfaces including compact flash slots, console ports, mgmt ports, alarm indicators and system LEDs

	3HE03065BA	Valere External AC Rectifier Bundle. Includes: Redundant AC power for SR-7, ESS-7 with AC split shelf (3HE02786BA x1), AC power supplies (3HE02787AA x4), status cable (3HE04519AA x1), DC lugs and blunt-cut AC International power cords(3HE02946AA x4), user must supply DC power cables, chassis lugs and AC wall connectors.
	3HE03658AA	7750 SR-c12 AC Power Entry Module-3 (PEM-3)
	3HE03077AA	1-port Channelized OC-3/STM-1 Circuit Emulation Services (CES) CMA, supports channelization down to DS0, accepts one (1) OC-3/STM-1 SFP Optics Modules
	3HE03610AA	7750 SR 5-port Gigabit Ethernet CMA-XP, requires optics, accepts 5 GigE SFP Optics Modules
	3HE03607AA	7750 SR-c12 Control / Forwarding Module-XP (CFM-XP), one (1) required per 7750 SR-c12, up to two (2) per 7750 SR-c12 for control and forwarding redundancy
	3HE03612AA	7750 SR 20-port 1000BASE Ethernet MDA-XP. Accepts up to twenty (20) SFP GigE-xx Optical Modules.
	3HE04274AA	7750 SR 1-Port 10GBASE Ethernet MDA-XP. Accepts One (1) XFP 10GigE Optics Modules.
	3HE03685AA	7750 SR 2-port 10GBASE Ethernet MDA-XP. Accepts two (2) XFP 10GigE Optics Modules.
	3HE03686AA	7750 SR 4-port 10GBASE Ethernet MDA-XP. Accepts four (4) XFP 10GigE Optics Modules.
	3HE03608AA	7750 SR-c12 MDA Carrier Module-XP (MCM-XP), supports one (1) 7750 SR MDA
	3HE04743AA	7x50 12-port 10GE IMM. Provides 12 physical 10GE ports that accept SFP+ pluggable optical modules. Full Service Routing Functionality, Full Queuing, hierarchical policing, IPv4/IPv6 routing services. Available upgrades/licenses: VPRN, Enhanced Subscriber Management (Layer-2 or routed CO model)
	3HE07305AA	7x50 20-port 10GE MultiCore CPU IMM. Provides 20 physical 10GE ports that accept SFP+ pluggable optical modules. Full Service Routing Functionality, Full Queuing, hierarchical policing, IPv4/IPv6 routing services. Available upgrades/licenses: VPRN
	3HE07303AA	7x50 2-port 100GE MultiCore CPU IMM. Provides 2 physical 100GE ports that accepts pluggable CFP connector. Full Service Routing Functionality, Full Queuing, hierarchical policing, IPv4/IPv6 routing services. Available upgrades/licenses: VPRN
	3HE06320AA	7x50 3-port 40GE QSFP+ IMM. Provides 3 physical 40GE port that accepts pluggable QSFP+ optic's. Full Service Routing Functionality, Full Queuing, hierarchical policing, IPv4/IPv6 routing services. Available upgrades/licenses: VPRN

	3HE07304AA	7x50 6-port 40GE QSFP+ IMM. Provides 6 physical 40GE ports that accepts pluggable QSFP+ optic's. Full Service Routing Functionality, Full Queuing, hierarchical policing, IPv4/IPv6 routing services. Available upgrades/licenses: VPRN
	3HE05053AA	7x50 1-port 100GE IMM. Provides 1 physical 100GE port that accepts pluggable CFP connector.Full Service Routing Functionality, Full Queuing, hierarchical policing, IPv4/IPv6 routing services. Available upgrades/licenses: VPRN, Enhanced Subscriber Management (Layer-2 or routed CO model)
	3HE06430AA	7x50 5-port 10GE IMM. Provides 5 physical 10GE port that accepts pluggable XFP connector. Full Service Routing Functionality, Full Queuing, hierarchical policing, IPv4/IPv6 routing services. Available upgrades/licenses: VPRN, LI, Enhanced Subscriber Management (Layer-2 or routed CO model)
	3HE06431AA	7x50 8-port 10GE IMM. Provides 8 physical 10GE port that accepts pluggable XFP connector. Full Service Routing Functionality, Full Queuing, hierarchical policing, IPv4/IPv6 routing services. Available upgrades/licenses: VPRN, LI, Enhanced Subscriber Management (Layer-2 or routed CO model)
	3HE06292AA	7x50 IMM RTU license for full VPRN support on IMMs with capacity of up to 100Gb/s. This is a per IMM license to scale up to the max VPRNs supported on the IMM.
	3HE00107LA	7750 SR-7 or SR-12 Release 10.0 Operating Software License. otes: One (1) Operating Software License is required for each SR-7 or SR-12 in the network. Includes two (2) programmed 2GB Compact Flash cards with the Operating Software.
	3HE04908LA	7750 SR-c12 Release 10.0 Operating Software License. Notes: One (1) Operating Software License is required for each 7750 SR-c12 in the network. Includes two (2) programmed 2GB Compact Flash cards with the Operating Software.
	3HE05580AA	PS - 7210 SAS-M ETR AC Power Supply
	3HE04164AA	7750 SR SFM3-7, one (1) required per 7750 SR-7 slot Shelf, up to two (2) per 7750 SR-7 slot Shelf for CPU and fabric redundancy.
	3HE05949AA	7750 SR SFM4-7, one (1) required per 7750 SR-7 slot Shelf, up to two (2) per 7750 SR-7 slot Shelf for CPU and fabric redundancy
	3HE05561AA	7210 SAS 4xT1/E1 CES TCXO module
	3HE06337AA	7210 SAS-M 2XFP Module

	3HE05170AA	7210 SAS-X 24F2XFP MPLS AC system includes; (1) 7210 SAS-X AC Power Supply, 1 Fan Tray, 7210 SAS Operating Software R3.0. Accepts 24 x 100/1000 SFP(s) and 2 XFP(s). The SAS-X is HQos Capable and High scaling.
	3HE05172AA	PS - 7210 SAS-X AC Power Supply
OmniAccess WLAN Guest Management		
	OAW-GM-SKINPS	OmniAccess Guest Management UI Customization Service - Custom UI Theme Creation. Professional service delivered by Aruba from a remote location. Statement of work defined in the product collateral. (SOLD AT LIST PRICE - NO DISCOUNT ALLOWED on THIS PROFESSIONAL SERVICE SKU).
	OAW-GM-LIC10000	OmniAccess Guest Manager 10000 user expansion pack
	OAW-GM-LIC50	OmniAccess WLAN Guest Management 50 User License Expansion Pack (Includes 250 provisioned devices for MDAC)
	OAW-GM-AVT10000	OmniAccess WLAN Guest Management Advertising Services Plugin for a maximum of 10,000 concurrent guest users.
	OAW-GM-SW100R	OmniAccess WLAN Guest Management SW High Availability Virtual Appliance for up to 10,000 guest users. Hardware not included. Not valid as standalone solution, only valid for customers with GM-SW100
OmniVista 2500		
	OV25EXT1000-NEW	OmniVista 2500 NMS Extension license for 1000 supplemental managed nodes - New InstallationLicense activation provides OmniVista 2500 management extension for additional 1000 devices/IP mgt addresses. Extension licenses (any combinations) can be combined to match the required number of nodes to manage. Activated New Extension Licenses are associated to a specific OV2500 NMS starter Pack New (OV25START-R35-N)
	OV25EXT500-NEW	OmniVista 2500 NMS Extension license for 500 supplemental managed nodes - New InstallationLicense activation provides OmniVista 2500 management extension for additional 100 devices/IP mgt addresses. Extension licenses (any combinations) can be combined to match the required number of nodes to manage. Activated New Extension Licenses are associated to a specific OV2500 NMS starter Pack New (OV25START-R35-N)

	OV25START-R35-N	OmniVista 2500 NMS Starter Pack license- New Installation Include activation license for all components (OmniVista core functions, PolicyView, SecureView Secure Access, SecureView ACL, Quarantine Manager, Access Guardian, User network profiles, Web Services) - Starter pack license includes support for up 10 managed nodes/IP Managed addresses (0 to 10 incl.). For larger infrastructure with larger IP managed address/node population, refer to Extension licenses section.
	OV2500-VMM-L	License for OmniVista 2500 VMM-L Large deployment . Supplemental application for OV2500 NMS for VM visibility , monitoring and UNP provisioning automation. Min OV2500NMS Config release 3.5.3 to operate with Wmware Vcenter releases 4.0/5.1 -single instance- up to max. 5000 virtual machines per deployment. Min OV2500NMS config release 3.5.4 to operate with Citrix XenServer Master Controller release 6.0.1 -single instance - up to max. 5000 virtual machines per deployment.
	OV2500-VMM-MI	License for OmniVista 2500 VMM-MI - Multiple instances -Supplemental application for OV2500 NMS for VM visibility , monitoring and UNP provisioning automation. Min OV2500NMS Config release 3.5.4 to operate with vmware Vcenter releases 4.0/5.1 - 2 instances - up to max. 5000 vm per combined deployment/Combined instances. Min OV2500NMS config release 3.5.4 to operate with Citrix XenServer Master Controller 6.0.1 - 2 instances - up to max.5000 vm per combined deployment/Combined instances.
	OV2500NMS-CD-35	OmniVista 2500 Network Management Solution- DVDContains all software images and installers for OmniVista 2500 Network Management System (OmniVista 2500 NMS & OmniVista 2500 VMM) for Ms Windows, Linux and Solaris OS. DVD includes all OmniVista 2500 NMS components (OmniVista Core, PolicyView, SecureView Secure Access, Secure ACL, Quarantine Manager, Access Guardian, User Network profiles, Web Services¿ all merged into a single application) for network infrastructure operations & OmniVista 2500 Virtual Machine Manager (VMM) for Data Center operations (Provisioning and troubleshooting).Required ordering OmniVista 2500 NMS Starter Pack license and/or OmniVista 2500NMS device license extensions if applicable for OmniVista 2500 NMS and OmniVista 2500 VMM license for Data Center operations- Licenses sold separately.

	OV25EXT1000-UPG	OmniVista 2500 NMS Extension license for 1000 supplemental managed devices -Upgrade Installation Upgrade License extension can only be combined with OmniVista 2500 Starter Pack upgrade License activation provides OmniVista management extension for additional 1000 devices/IP management addresses. Extension licenses (any combinations) can be combined to match the required number of nodes to manage. Activated Upgrade Extension licenses are associated to a specific OV2500 NMS starter Pack Upgrade (OV25START-R35-U)
	OV25START-R35-U	OmniVista 2500 NMS Starter Pack license- Upgrade installation Include activation license for all components (OmniVista core functions, PolicyView, SecureView Secure Access, SecureView ACL, Quarantine Manager, Access Guardian, User network profiles, Web Services) - Starter pack license includes support for up 10 managed nodes/IP Managed addresses (0 to 10 incl.). For larger infrastructure with larger IP managed address/node population, refer to Extension licenses section.Extension Upgrade License for upgrade installation can only be combined with OmniVista 2500 NMS Starter Pack Upgrade (OV25START-R35-U) - Upgrade installation requires proof of previous release r3.4x or prior.
OmniVista 3600		
	OV3600-AM2500X	OmniVista 3600 expansion license for one additional device for systems with 2,500 or more existing device licenses
	OV3600-AMENT	OmniVista 3600 Air Manager Software suite for a single server managing up to 2500 devices (controllers, wireless access points, switches, etc.).Includes OmniVista 3600 core platform, visualization and mapping software module (VisualRF), and Rogue detection software module (RAPIDS)
	OV3600-AMS2500X	OmniVista 3600 Expansion license (quantity 1) for customers that have current site license for 2500 volume
	OV3600-MASTER	Single-server software licensed to manage multiple OV3600 servers from a single console
	OV3600-HWENT	Hardware appliance for OmniVista 3600 Air Manager Enterprise Edition and smaller software licenses
PROXIM 100meg RADIO LINK (50 meg UP AND 50 meg DOWN)		
	QB-8150-LNK-100-WD	Tsunami QB 8150 Link, 2x50 Mbps, MIMO 2x2, 21 dBi Integrated antenna (Two QB-8150-EPR-100-WD)
	ETH-SURGE-1G	SURGE, GIGABIT SURGE PROTECTOR WITH SHIELDED RJ45.

PROXIM 300 meg RADIO LINK - INTEGRATED		
	QB-8150-LNK-WD	Tsunami QB 8150 Link, 300 Mbps, MIMO 2x2, 23 dBi Integrated antenna (Two QB-8150-EPR-WD)
	ETH-SURGE-1G	SURGE, GIGABIT SURGE PROTECTOR WITH SHIELDED RJ45.
PROXIM 300 meg RADIO LINK - CONNECTORISED		
	QB-8100-LNK-WD	Tsunami QB 8100 Link, 300 Mbps, MIMO 3x3, Type-N Connectors (Two QB-8100-EPA-WD)
	ETH-SURGE-1G	SURGE, GIGABIT SURGE PROTECTOR WITH SHIELDED RJ45.
Radio Antenna options		
	R.GARPD2-54-N	2ft Solid Parabolic Antenna Dual Pol 4.94 -4.99GHz - 26.5dBi, 5.250-5.850GHz - 28.3dBi
	R.GARPD3-54-N	3ft Solid Parabolic Antenna Dual Pol 4.94 -4.99GHz - 30.0dBi, 5.250-5.850GHz - 31.2dBi
	R.GARPD4-56-N	4ft Solid Parabolic Antenna Dual Pol 5.25 -5.85GHz - 34.3dBi
Radio Extras		
	ETH-POEINJ-1G	Gigabit , 32W, PoE injector with RJ45 and reload button
	BS-001	Brackets and steel work (Per Link)
	UPS-ENCL	IP Rated UPS Enclosure
Radio UPS		
	UPS	SON2004 2KVA 120 (180) Min BackUp
	SNMP	SNMP - Internal Single phase
	UPS-RMNTBR	Rack mount bracket
	UPS-DEL	Delivery and Installation - UPS
Radio Masts		
	5M MAST	5m Mast
GENESYS		
	3GP08804ACAA	v8.1 - Genesys CIM Platform - SS
	3GP08803ACAA	v8.1 - Genesys CIM Platform - MS
	3GP08812ACAA	v8.1 - HA - CIM Platform
	3GP08771ACAA	v8.1- SNMP

	3GP08789ACAA	v8.1 - Genesys Inbound Voice
	3GP08789ACAA	v8.1 - HA - Voice
	3GP08809ACAA	v8.1 - Genesys Outbound Voice
	3GP08811ACAA	v8.1 - Outbound Voice w/Genesys CPD/ASM
	3GP08807ACAA	v8.1 - Genesys Outbound Preview
	3GP08892ACAA	v8.1 - Genesys E-mail
	3GP08891ACAA	v8.1 - Genesys Chat
	3GP08900ACAA	v8.1 - Web Collaboration Option
	3GP08898ACAA	v8.1 - Genesys Web Callback
	3GP08894ACAA	v8.1 - Genesys SMS
	3GP08885ACAA	v8.1 - 3rd Party E-mail
	3GP08886ACAA	v8.1 - 3rd Party SMS
	3GP08921ACAA	v8.1 - 3rd Party Chat
	3GP08888ACAA	v8.1 - Content Analyzer
	3GP08896ACAA	v8.1 - Genesys Social Engagement - Seat
	3GP08926ACAA	v8.1 - Genesys Social Engagement - User
	3GP08925ACAA	v8.1 - Genesys Social Engagement - App.
	3GP08956ACAA	v8.1 - iWD - Back Office
	3GP08960ACAA	v8.1 - intelligent Workload Distribution
	3GP08784ACAA	v8.1 - iWD Capture Adapter - JMS
	3GP08428ACAA	v8.0 - Genesys LivePerson Adapter
	3GP08891ACAA	v8.1 - Genesys Chat
	3GP08825ACAA	v8.1 - Proactive Contact-Voice w/Gen.CPD
	3GP09012ACAA	v8.1 - CM - Voice
	3GP09010ABAA	v8.1 - CM - Multi-Channel
	3GP09013ACAA	v8.1 - CM - Voice Self Service Channel
	3GP08843ACAA	v8.1 - Genesys Info Mart
	3GP08847ACAA	v8.1 - HA - Genesys Info Mart
	3GP08845ACAA	v8.1 - Genesys Interactive Insights
	3GP08748ACAA	v8.0 - Genesys Interactive Insights iWD

	3GP07004ACAA	v7.0 - Call Concentrator
	3GP072001ACAA	v7.0 - HA - Call Concentrator
	3GP08743ACAA	v8.1 - Agent Advisor
	3GP08745ACAA	v8.1 - Frontline Advisor
	3GP08744ACAA	v8.1 - Contact Center Advisor
	3GP08746ACAA	v8.1 - Workforce Advisor
	3GP08758ACAA	v8.1 - CCAdvr - Mobile Edition
	3GP08781ACAA	v8.1 - Genesys Workforce Management
	3GP08640ACAA	v8.0 - UC Connect
	3GP08708ACAA	v8.0 - HA - UC Connect
	3GP08744ACAA	v8.1 - Contact Center Advisor
	3GP08746ACAA	v8.1 - Workforce Advisor
	3GP08743ACAA	v8.1 - Agent Advisor
	3GP08743ACAA	v8.1 - Agent Advisor
	3GP08745ACAA	v8.1 - Frontline Advisor
	3GP08744ACAA	v8.1 - Contact Center Advisor
	3GP08983ACAA	v8.1 - Genesys Agent Scripting
	3GP08730ACAA	v8.1 - Interaction Workspace
	3GP08732ACAA	v8.1 - Interaction Workspace AIC Upgrade
	3GP08733ACAA	v8.1 - Interaction Workspace GAD Upgrade
	3GP08148ACAA	v7.6 - Genesys Agent Desktop
	3GP08971ACAA	v8.0 - Gplus Adapter for SAP CRM
	3GP07681ACAA	v7.5 - Gplus Adapter for SAP ERP
	3GP07808ACAA	v7.5 - Gplus Adapter for SAP Analytics
	3GP07465ACAA	v7.1 - Gplus Data Access for SAP
	3GP08976ACAA	v8.0 - Gplus SAP E-mail Option
	3GP08766ACAA	v8.1 - Genesys Universal SDK
	3GP08749ACAA	v8.1 - Enterprise Integration Connector
	3GP08765ACAA	v8.1 - Agent Connector
	3GP08794ACAA	v8.1 - SIP Endpoint Connector

	3GP08760ACAA	v8.1 - Advanced Integ. Connector - Seat
	3GP08827ACAA	v8.1 - Upgr. to Advanced Integ.Connector
	3GP08756ACAA	v8.1 - Workforce Management Connector
	3GP08481ACAA	v8.0 - Recording Connector
	3GP08754ACAA	v8.1 - Wallboard Connector
	3GP08793ACAA	v8.1 - Inbound to Network Voice upgrade
	3GP08219AEAA	v7.6 - Outbound Contact-Upgrade-SS to MS
	3GP08499ACAA	v8.0 - Outbound Preview-Upgrade-SS to MS
	3GP08223AEAA	v7.6 - Prevw to Outbnd Contct-Upgrade-SS
	3GP08222AEAA	v7.6 - Prevw to Outbnd Contct-Upgrade-MS
	3GP08221AEAA	v7.6 - Outbd Upgrade - Preview to Voice
	3GP08820ACAA	v8.1 - Outbound Voice Upgr.-Gen. CPD/ASM
	3GP08842ACAA	v8.1 - CCON to Info Mart Upgrade
	3GP08846ACAA	v8.1 - HA - CCON HA - Info Mart Upg.
	3GP08614ACAA	v8.0 - iWD-Back Office to CIM-SS Upgrade
	3GP08955AEAA	v8.1 - 3rd Party Work Items to iWD Upgr.
	3GP08954AEAA	v8.1 - 3rd Party Fax to iWD Upgrade
	3GP08428ACAA	v8.0 - Genesys LivePerson Adapter
	3GP08917ACAA	Virtual Hold Concierge v7
	3GP08914ACAA	Virtual Hold Rendezvous v7
	3GP08911ACAA	Virtual Hold WebConnect v7
	3GP08910ACAA	Virtual Hold WebConnect v7 SS
	3GP08918ACAA	Virtual Hold CTI Adapter v7
	3GP08913ACAA	Virtual Hold Routing Adapter v7
	3GP08915ACAA	Virtual Hold ReaderBoard Adapter v7
	3GP08916ACAA	Virtual Hold IVR Adapter v7
	3GP08375ACAA	v8.1 - Genesys Voice Platform
	3GP08380ACAA	v8.1 - HA - Genesys Voice Platform
SPECIAL ITEMS		

	C9.1.1000001	Project Management Rate per day
	C9.1.1000002	Training on site Rate per day
	C9.1.1000003	Site Inspection Rate per day
	C9.1.1000004	Self Service Terminal (each)
	C9.1.1000005	Stand-alone touch screen equipment with printer, steel enclosure and internet connectivity
	C9.1.1000006	Architecture Design Services Rate per day
	C9.1.1000007	Sniffer Services Rate per day
	C9.1.1000008	Professional Services Rate per day
	C9.1.1000009	Consulting Services on site Rate per day
	C9.1.1000010	Mobile Network Operations Centre, including related equipment
	C9.1.1000011	WFM Services Rate per day
	C9.1.1000012	Production Analytical Services Rate per day
	C9.1.1000013	Programme Management Rate per day
	C9.1.1000014	Infrastructure Audit Services Rate per day
	C9.1.1000015	Assessment Services Rate per day
	C9.1.1000016	Product Specialist Services Rate per day
VIDEO CONFERENCING		
	7200-26920-102	HDX Executive Collection 8000-720 2ET. HDX 8000-720 (see 7200-23150-102) HDX Executive Collection stand with integrated 240v/270w audio and 2-50" 1080p plasma displays EagleEye camera mount cable bundle (Maintenance Contract Required)
	7200-26930-102	HDX Executive Collection 8000-1080 2ET. HDX 8000-1080 (see 7200-23160-102), HDX Executive Collection stand with integrated 240v/270w audio and 2-50" 1080p plasma displays,EagleEye camera mount, cable bundle, (Maintenance Contract Required)
	2200-26500-102	HDX 9000-720: HDX 9006 codec w/ mounting ears, 11*Phoenix connectors, P+C, PPCIP, PoC. Eng Rmt. UK,EUR,AUS pwr. PAL (Maintenance Contract Required)
	2200-26740-102	HDX 9000-1080: HDX 9006 codec w/ mounting ears, 11*Phoenix connectors, P+C, PPCIP, PoC,1080 license. Eng Rmt UK,EUR,AUS pwr. PAL (Maintenance Contract Required)
	2215-24725-001	Cable kit for HDX 9000 series:HDCI-f to 5xBNC-f+DB9-f, 1' ; DVI-A-m to 5xBNC-f, 1'; Walta to RJ45 socket 18"; S-Video to 2xBNC-m, 1'; Walta to Walta, 7.6m; HDCI-m to HDCI-m, 10m; RJ45 5E, 3.66m; Phoenix to 2xRCA-f, 1'; 2xRCA-m, 25'; RJ11, 12'

	2200-30070-001	Polycom Touch Control for use with HDX 6000, 7000, 8000, and 9000 series codecs with software version 3.0 or later. Requires PoE network connection or optional external power supply (2200-42740-XXX).
	2215-23275-001	HDX 9000 Bracket hardware. Includes bracket ears and screws to convert HDX 9000 series codec for rack mount
	2215-23410-001	HDX 9000 hardware kit. Includes vinyl feet and 11 phoenix connectors
	2457-23492-001	Cable, HDX 9000 adapter for 2 x Phoenix ports to 2 x RCA(F)
	2457-23716-001	CLink 2 cable, HDX microphone array cable RJ45 to Walta(F) adapts HDX microphone cable to HDX 9000 series codecs
	2457-26764-072	Extended length Black "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-001 & 2200-23810-001 only. Replaces 2457-24701-001
	2457-26765-072	Extended length White "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-002 & 2200-23810-002 only. Replaces 2457-24701-003
	5150-23912-001	HDX MPPlus Multipoint Software Option License. Allows for 4 site MP video calls. Available for HDX systems (4000, 4500, 7000, 8000 and 9000 Series).
	5150-23915-001	HDX 8Mbps data rate upgrade Allows for up to 8Mbps multipoint video calls. Requires MP license for MP feature. Point to point calls not affected. Available on HDX 9004 only
	5150-26946-001	Software option for HDX 7000 revC, HDX 8000 revB and HDX 9000 revB systems to enable 1080 encode/decode, 1080p codec
	5150-63389-001	HDX RTV/CCCP license. Enables support for Microsoft RTV codec and direct calls to MS AV MCU. Available for HDX 9006, HDX 8000 rev B, HDX 7000 rev C or D, HDX 6000, HDX 4500, HDX 4000 rev C.
	5150-63611-001	HDX TIP license. Enables support for Cisco TIP compatibility. Available for HDX 9000 rev B, HDX 8000 rev B, HDX 7000 rev C, HDX 4500, HDX 4000 rev C.
	5150-65478-001	HDX Software upgrade version 3.1;for all Polycom HDX systems.
	2215-23365-001	Quad BRI Module for HDX 9000 Series. Includes four 20ft/6m ISDN cables (with green connectors).
	2215-23366-001	Serial Network Module for HDX 9000 (V.35, RS449, RS350 with RS366 dialing) . Includes HD68-DB44 adapter. Serial interface cable ordered separately)

	2215-23367-002	E1/PRI Module for HDX 9000 Series. Includes 1 20ft/6m PRI cable (with clear connector)
	2457-10609-200	Cable, 1 V.35 and RS-366 5' Serial Cable, HD-44M to 'Y' Winchester 34M / RS-366 DB-25M,RoHS
	2457-10610-200	Cable, 1 RS-449 and RS-366 5' Serial Cable, HD-44M to 'Y' RS-499 DB-37M / RS-366 DB-25M,RoHS
	2457-21263-200	Cable, 1 RS-530 with RS-366, 5' Serial Cable, HD-68M to 'Y' RS-530 DB-25M / RS-366 DB-25M
	2675-52709-001	Caster kit for packaged solutions, Polycom HDX Media Centers only, single and dual displays. Set of 4, 2 locking for use in front, 4".
	7200-26820-102	HDX Media Center 8000-720 2WC50 (see 7200-23150-102, less mic array), 2 HDX Media Center wall mounts, 2-50" 1080p plasma, 2 soundbars, White HDX ceiling mic array, EagleEye HD camera mount, cable bundle, (Maintenance Contract Required)
	7200-26850-102	HDX Media Center 8000-720 1WC50. HDX 8000-720 (see 7200-23150-102, less mic), HDX MC wall mount with 1-50" 1080p plasma display, 1 soundbar, EagleEye HD camera mount, HDX Ceiling mic array wht, cable bundle, (Maintenance Contract Required)
	7200-26860-102	HDX Media Center 8000-1080 1WC50. HDX 8000-1080 (see 7200-23160-102, less mic), HDX Media Center wall mount with 1-50" 1080p plasma, 1 soundbar,EagleEye HD camera mount, HDX Ceiling mic array wht, cable bundle, (Maintenance Contract Req)
	7200-26870-102	HDX Media Center 8000-1080 2WC50. HDX 8000-1080 (see 7200-23160-102, less mic), 2 HDX Media Center wall mounts, 2-50" 1080p plasma, 2 soundbars,EagleEye HD camera mnt, HDX Ceiling mic array wht, cable bundle, (Maintenance Contract Required)
	7200-26900-102	HDX Media Center 8000-720 1PT50. HDX 8000-720 (see 7200-23150-102), HDX Media Center Pedestal with 1-50" 1080p plasma display, 1 soundbar, EagleEye HD camera mount, cable bundle, order casters separately, (Maintenance Contract Required)
	7200-26910-102	HDX Media Center 8000-1080 1PT50. HDX 8000-1080 (see 7200-23160-102), HDX Media Center Pedestal with 1-50" 1080p plasma display, 1 soundbar,EagleEye HD camera mount, cable bundle, order casters separately, (Maintenance Contract Required)
	1465-09241-001	Power supply for EagleEye Director base, 115V/230Vin,12V/5A OUT--DOES NOT INCLUDE AC POWER CORD--
	7200-23150-102	HDX 8000-720: HDX 8000 HD codec, EagleEye camera & 3m cable, HDX mic array, Eng rmt. Cables: 2 comp1nt video (DVI-RCA), audio (RCA-RCA), LAN, UK pwr cord. PAL (Maintenance Contract Required)

	7200-23160-102	HDX 8000-1080: HDX 8000 HD codec, EagleEye III camera&license, HDX mic array, Eng rmt. Cables: 2 comp1nt video (DVI-RCA), audio (RCA-RCA), LAN, UK pwr cord. PAL (Maintenance Contract Required)
	1676-27233-001	Transport Case for HDX 6000/7000/8000. Hard case with casters, retractable handle and custom foam interior. Accommodates base unit, EagleEye, up to 50'/15m camera cable, mic array, H.320 module, remote control and applicable cables.
	2200-30070-001	Polycom Touch Control for use with HDX 6000, 7000, 8000, and 9000 series codecs with software version 3.0 or later. Requires PoE network connection or optional external power supply (2200-42740-XXX).
	2215-28283-001	Shelf for mounting the HDX 8000, 7000 and 6000 series codecs. This is a black 2u shelf for 19" racks which will hold the codec in position with a secure mounting system. 2u (3.5 inches) x 17.5 (without ears, 19 with) x 14.5 deep. Shelf only.
	2457-26764-072	Extended length Black "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-001 & 2200-23810-001 only. Replaces 2457-24701-001
	2457-26765-072	Extended length White "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-002 & 2200-23810-002 only. Replaces 2457-24701-003
	5150-23912-001	HDX MPPlus Multipoint Software Option License. Allows for 4 site MP video calls. Available for HDX systems (4000, 4500, 7000, 8000 and 9000 Series).
	5150-26126-001	HDX Expanded I/O software option. Enables the HD camera 2 video input and the HD monitor 2 video output ports. Available for the HDX 8002 only.
	5150-26946-001	Software option for HDX 7000 revC, HDX 8000 revB and HDX 9000 revB systems to enable 1080 encode/decode, 1080p codec
	5150-63389-001	X RTV/CCCP license. Enables support for Microsoft RTV codec and direct calls to MS AV MCU. Available for HDX 9006, HDX 8000 rev B, HDX 7000 rev C or D, HDX 6000, HDX 4500, HDX 4000 rev C.
	5150-63611-001	HDX TIP license. Enables support for Cisco TIP compatibility. Available for HDX 9000 rev B, HDX 8000 rev B, HDX 7000 rev C, HDX 4500, HDX 4000 rev C.
	5150-65478-001	HDX Software upgrade version 3.1;for all Polycom HDX systems.

	2215-26690-001	Quad BRI Module for HDX Series. Includes four ISDN 20ft/6m cables (with clear connectors) and HDX external peripheral interface box.
	2215-26695-001	PRI E1 Module for HDX Series. Includes 1 20ft/6m PRI cable (with clear connector) and HDX external peripheral interface box.
	2215-26696-001	V.35 Module for HDX series (RS449, RS350 with RS366 dialing). Includes HD68-DB44 adapter and HDX external peripheral interface box. (Serial interface cable ordered separately)
	2457-10609-200	Cable, 1 V.35 and RS-366 5' Serial Cable, HD-44M to 'Y' Winchester 34M / RS-366 DB-25M,RoHS
	2457-10610-200	Cable, 1 RS-449 and RS-366 5' Serial Cable, HD-44M to 'Y' RS-499 DB-37M / RS-366 DB-25M,RoHS
	2457-21263-200	Cable, 1 RS-530 with RS-366, 5' Serial Cable, HD-68M to 'Y' RS-530 DB-25M / RS-366 DB-25M
	2675-52709-001	Caster kit for packaged solutions, Polycom HDX Media Centers only, single and dual displays. Set of 4, 2 locking for use in front, 4".
	7200-26760-102	HDX Media Center 7000-720 1WC. HDX 7200-23130-102, less mic, HDX Media center 1 Wall with 1-50" 1080p plasma display, 1 soundbar, EagleEye HD camera mount, HDX Ceiling mic array wht, cable bundle, (Maintenance Contract Required)
	7200-26790-102	HDX Media Center 7000-720 1PT50. HDX 7200-23130-102, HDX Media Center Pedestal with 1-50"1080p plasma display, 1 soundbar, EagleEye HD camera mount, cable bundle, order casters separately, (Maintenance Contract Required)
	7200-26950-102	HDX Media Center 7000-720 2WC. HDX 7200-23130-102, less mic, HDX Media center 2 Wall with 2-50" 1080p LCD display, 2 soundbars, EagleEye HD camera mount, HDX Ceiling mic array wht, cable bundle, (Maintenance Contract Required)
	7200-23130-102	HDX 7000-720: HDX 7000 HD codec, EagleEye camera & 3m cable, HDX mic array, P+C, PPCIP, 2nd monitor, Eng rmt. Cables: 2 comp1nt video (DVI-RCA), audio (RCA-RCA), LAN, UK pwr. PAL (Maintenance Contract Required)
	CP-6507-102	HDX 7000-720HDX 7000-720HD codec with EagleEye HD camera, (1) white HDX ceiling mic array, P+C, PPCIP, 2nd monitor, English remote, standard HDX cable bundle ~ Note: the standard table top mic is removed ~ Based on: 7200-23130-102 and 2200-23809-002. Mandatory Partner Premier to be ordered separately.
	7200-23140-102	HDX 7000-1080: HDX 7000 HD codec, EagleEye III camera&license, HDX mic array, P+C, PPCIP, 2nd monitor option, English rmt. Cables: 2 Comp1nt video (DVI-to-3xRCA), audio (RCA-RCA), LAN, UK pwr. PAL

	7200-27670-102	HDX 7001: Incl codec, EagleEye HD camera, HDX mic array, PPCIP, P+C, Eng rmt. Cables: Comp1nt video (DVI-to-3xRCA), audio (RCA-RCA), LAN, U/E/A Pwr Cord. Mandatory Partner Premier to be ordered separately.
	2215-12917-001	HDX 7001 upgrade kit. Hardware upgrade for HDX 7001 systems to convert to an HDX 7000 rev C codec. Requires installation by certified service partner. HDX must have software version 2.5.0.8 or later.
	2200-30070-001	Polycom Touch Control for use with HDX 6000, 7000, 8000, and 9000 series codecs with software version 3.0 or later. Requires PoE network connection or optional external power supply (2200-42740-XXX).
	2215-28283-001	Shelf for mounting the HDX 8000, 7000 and 6000 series codecs. This is a black 2u shelf for 19" racks which will hold the codec in position with a secure mounting system. 2u (3.5 inches) x 17.5 (without ears, 19 with) x 14.5 deep. Shelf only.
	2457-26764-072	Extended length Black "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-001 & 2200-23810-001 only. Replaces 2457-24701-001
	2457-26765-072	Extended length White "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-002 & 2200-23810-002 only. Replaces 2457-24701-003
	2230-27885-001	HDX 7000 2nd monitor kit for comp1nt displays, includes SW option and 12' DVI m to 3xRCA m cable. PAL countries requires 2.5 or later software. This software option is included with HDX 2.6 release and later.
	2230-27886-001	HDX 7000 2nd monitor kit for VGA displays, includes SW option and 3m DVI m to VGA m cable. Required for PAL countries using software 2.0.x. This software option is included with HDX 2.6 release and later.
	5150-23912-001	HDX MPPlus Multipoint Software Option License. Allows for 4 site MP video calls. Available for HDX systems (4000, 4500, 7000, 8000 and 9000 Series).
	5150-26946-001	Software option for HDX 7000 revC, HDX 8000 revB and HDX 9000 revB systems to enable 1080 encode/decode, 1080p codec
	5150-63389-001	X RTV/CCCP license. Enables support for Microsoft RTV codec and direct calls to MS AV MCU. Available for HDX 9006, HDX 8000 rev B, HDX 7000 rev C or D, HDX 6000, HDX 4500, HDX 4000 rev C.

	5150-63611-001	HDX TIP license. Enables support for Cisco TIP compatibility. Available for HDX 9000 rev B, HDX 8000 rev B, HDX 7000 rev C, HDX 4500, HDX 4000 rev C.
	5150-65478-001	HDX Software upgrade version 3.1;for all Polycom HDX systems.
	2215-26690-001	Quad BRI Module for HDX Series. Includes four ISDN 20ft/6m cables (with clear connectors) and HDX external peripheral interface box.
	2215-26695-001	PRI E1 Module for HDX Series. Includes 1 20ft/6m PRI cable (with clear connector) and HDX external peripheral interface box.
	2215-26696-001	V.35 Module for HDX series (RS449, RS350 with RS366 dialing). Includes HD68-DB44 adapter and HDX external peripheral interface box. (Serial interface cable ordered separately)
	2457-10609-200	Cable, 1 V.35 and RS-366 5' Serial Cable, HD-44M to 'Y' Winchester 34M / RS-366 DB-25M,RoHS
	2457-10610-200	Cable, 1 RS-449 and RS-366 5' Serial Cable, HD-44M to 'Y' RS-499 DB-37M / RS-366 DB-25M,RoHS
	2457-21263-200	Cable, 1 RS-530 with RS-366, 5' Serial Cable, HD-68M to 'Y' RS-530 DB-25M / RS-366 DB-25M
	1662-52742-001	HDX 6000-View Media Center wall mounting bracket. Includes 2 mounting arms and the wall mounted stationary bracket.
	2675-52709-001	Caster kit for packaged solutions, Polycom HDX Media Centers only, single and dual displays. Set of 4, 2 locking for use in front, 4".
	7200-26940-102	HDX 6000 View Media Center. HDX 6000 View codec & EagleEye View camera with embedded microphones (7200-23170-102), 1-42" 1080p LCD display with 60w integrated audio, cable bundle, (Maintenance Contract Required)
	7200-29910-102	HDX Media Center 6000-720 1PT (see 7200-29025-102), HDX MC Pedestal, 1-42" 1080p LCD display, 1 soundbar, EagleEye HD camera mount, HDX Table top mic array, cable bundle, order casters sep (Maintenance Contract Required)
	7200-29915-102	HDX Media Center 6000-720 1PT50. HDX 6000-720 (see 7200-29025-102), HDX MC Pedestal, 1-50" 1080p plasma display, 1 soundbar, EagleEye HD camera mount, cable bundle, order casters sep (Maintenance Contract Required)
	7200-30020-102	HDX Media Center 6000-720 1WC (see 7200-29025-102, minus mic array),HDX MC Wall mount, 1-42" 1080p LCD display, 1 soundbar, 1 White Ceiling Mic array, EagleEye HD camera mount, cable bundle (Maintenance Contract Required)

	7200-30030-102	HDX Media Center 6000-720 1WC50(see 7200-29025-102, minus mic array),HDX MC wall mount,1-50" 1080p plasma display,1 soundbar,1 White Ceiling Mic array,EagleEye HD camera mount,cable bndl (Maintenance Contract Required)
	4870-00634-002	Onsite installation service for HDX Media Center 6000 series with 1 42" Display Series (If installations fall outside of Johannesburg, Durban and Cape Town surrounding areas, travel costs will be charged, and will be quoted on seperately)
	4870-00842-002	Onsite installation service for HDX Media Center 6000 with View Camera (If installations fall outside of Johannesburg, Durban and Cape Town surrounding areas, travel costs will be charged, and will be quoted on seperately) (If installations fall outside of Johannesburg, Durban and Cape Town surrounding areas, travel costs will be charged, and will be quoted on seperately)
	4870-29915-002	Onsite installation service for HDX Media Center 6000 series with 1 50" Display
	7200-23170-102	HDX 6000 View codec, EagleEye View with internal microphones and 3m cable, English Remote, Cable bundle (6' HDMI, 12' LAN), 2.5m UK Pwr Cord PAL (Maintenance Contract Required)
	7200-29025-102	HDX 6000 HD codec, EagleEye camera & 3m cable, HDX microphone with 25' cable, English Remote, Cable bundle (6' HDMI, 12' LAN), 2.5m UK pwr cord. (Maintenance Contract Required)
	1676-27233-001	Transport Case for HDX 6000/7000/8000. Hard case with casters, retractable handle and custom foam interior. Accommodates base unit, EagleEye, up to 50'/15m camera cable, mic array, H.320 module, remote control and applicable cables.
	2200-30070-001	Polycom Touch Control for use with HDX 6000, 7000, 8000, and 9000 series codecs with software version 3.0 or later. Requires PoE network connection or optional external power supply (2200-42740-XXX).
	2215-28283-001	Shelf for mounting the HDX 8000, 7000 and 6000 series codecs. This is a black 2u shelf for 19" racks which will hold the codec in position with a secure mounting system. 2u (3.5 inches) x 17.5 (without ears, 19 with) x 14.5 deep. Shelf only.
	2457-26764-072	Extended length Black "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-001 & 2200-23810-001 only. Replaces 2457-24701-001
	2457-26765-072	Extended length White "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-002 & 2200-23810-002 only. Replaces 2457-24701-003
	2457-28808-001	Cable, HDMI(M) to HDMI(M), 0.914m/3ft.

	2457-28808-002	Cable, HDMI(M) to HDMI(M), 1.829m/6ft.
	5150-26511-001	SW option for HDX 6000, 1080p People Max resolution. Max fps: 30 RX and 15 TX
	5150-63389-001	X RTV/CCCP license. Enables support for Microsoft RTV codec and direct calls to MS AV MCU. Available for HDX 9006, HDX 8000 rev B, HDX 7000 rev C or D, HDX 6000, HDX 4500, HDX 4000 rev C.
	5150-65478-001	HDX Software upgrade version 3.1;for all Polycom HDX systems.
	1676-27233-001	Transport Case for HDX 6000/7000/8000. Hard case with casters, retractable handle and custom foam interior. Accommodates base unit, EagleEye, up to 50'/15m camera cable, mic array, H.320 module, remote control and applicable cables.
	2200-21969-120	Stereo Speaker Set, 120V. Includes two Satellite speakers, subwoofer, speaker stands, 3.5mm to 2xRCA and speaker wire.
	2200-21969-240	Stereo Speaker Set, 240V. Includes two Satellite speakers, subwoofer, speaker stands, 3.5mm to 2xRCA and speaker wire.
	2200-23809-001	Ceiling microphone array - Black "Primary". Includes 2ft/60cm drop cable, electronics Interface, wall plate with 10ft/3m & 50ft/15m plenum cable. For RealPresence Group, HDX & SoundStructure. See Extension for additonal arrays.
	2200-23809-002	Ceiling microphone array - White "Primary". Includes 2ft/60cm drop cable, electronics Interface, wall plate with 10ft/3m & 50ft/15m plenum cable. For RealPresence Group, HDX & SoundStructure. See Extension for additonal arrays.
	2200-23810-001	Ceiling microphone Array - Black "Extension" Kit: Includes 2ft/60cm drop cable, electronics interface, 25ft/7.6m plenum cable. For use with Ceiling microphone Array 2200-23809-001. Platform dictates maximum # supported.
	2200-23810-002	Ceiling microphone Array - White "Extension" Kit: Includes 2ft/60cm drop cable, electronics interface, 25ft/7.6m plenum cable. For use with Ceiling microphone Array 2200-23809-002. Platform dictates maximum # supported.
	2200-30070-001	Polycom Touch Control for use with HDX 6000, 7000, 8000, and 9000 series codecs with software version 3.0 or later. Requires PoE network connection or optional external power supply (2200-42740-XXX).
	2201-52556-001	HDX remote control for use with HDX Series codecs, English version

	2215-12917-001	HDX 7001 upgrade kit. Hardware upgrade for HDX 7001 systems to convert to an HDX 7000 rev C codec. Requires installation by certified service partner. HDX must have software version 2.5.0.8 or later.
	2215-12917-002	HDX 7000/8000 upgrade kit. Hardware upgrade for HDX 7000 (rev A or rev B) and the HDX 8000 (rev A). Requires installation by certified service partner. HDX must have software version 2.5.0.8 or later.
	2215-24143-001	Mounting bracket\shelf solution for EagleEye Director, EagleEye HD, EagleEye III, EagleEye View and EagleEye QDX Cameras.Mounts on the wall, other flat surfaces over 8in deep or flat screen displays greater than 1.5in thick.
	2215-24408-001	EagleEye HD/II/III mounting bracket tripod mount.
	2215-28765-001	EagleEye 1080 Camera wall/panel/shelf mounting bracket
	2230-40600-025	SoundStation IP 7000 conference phone compatible with RealPresence Group Series and HDX Series. Includes 7.6m/25ft shielded Ethernet cable and 3m/10ft CLink2 cable.
	2457-26764-072	Extended length Black "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-001 & 2200-23810-001 only. Replaces 2457-24701-001
	2457-26765-072	Extended length White "drop cable" for connecting Spherical Ceiling microphone Array element to electronics interface. 6ft (1.8m) long. Used with 2200-23809-002 & 2200-23810-002 only. Replaces 2457-24701-003
VOICE & SCREEN LOGGERS		
	3INT008A	Smartworks 10/100 ethernet tap box
	3INT008B	Smartworks 10/100/1000 ethernet tap box
	3LSP001A	DataVoice Screen Recording platform
	3NAS002A	4 TByte RAID 5 system with S-ATA II hard drives
	3NAS003A	8 TByte RAID 5 system with SATA II hard drives
	3NSP005A	Nexus 1000 - High Performance Database Server Rack
	3NSP006A	Nexus 2000 - High Performance Database Server Rack
	3NSP007A	Nexus 3000 - High Performance Database Server Rack
	3PSU006A	Redundant power supply for rack mountable platform - auto sensing

	3QSP001A	Qnique platform
	3RAID001A-R	RAID1 for RAC platforms
	3RAID002A-R	RAID1 for PRF & POW platforms
	3RCP001A	Rack mountable recording controller platform
	3REC001C	Smartworks digital extension line interface PCI card - 8 channels
	3REC001D	Daughter board for 3REC001C - 8 channels
	3REC002H	Smartworks analogue line interface PCI card - 24 channels
	3REC005A	Smartworks IPX-C VoIP interface PCI card - 30 channels
	3REC005D-R	Channel expansion on 3REC005A - per 10 channels
	3REC006E-R	Smartworks HPX VoIP - 30 channels
	3REC006F	Channel expansion on 3REC006E - per 10 channels
	3REC006G	Channel expansion on 3REC006E - per 20 channels
	3REC006H	Channel expansion on 3REC006E - per 30 channels
	3REC006I	Channel expansion on 3REC006E - per 50 channels
	3SFU001A	SAFileUp Standard Edition - per site
	3SL02A	Slide rail set for rack mounted platforms - per set
	3SWS014A	Microsoft SQL Server 2008, Standard Edition
	3SWS014B	Microsoft SQL Server 2008, Standard Edition client access license, per license
	3SWS014C	Microsoft SQL Server 2008, Standard Edition core license, per quad core
	3UPG002A	DVR-LIB-ECO desktop platform hardware upgrade
	3UPG002B	DVR-LIB-DES/RAC platform hardware upgrade
	3UPG003A	DVR-LIB-PRF/POW rackmount platform hardware upgrade
	3UPG004A-R	Co-host Screen Recording upgrade on ECO/DES/RAC platforms
	3UPG004B-R	Co-host Screen Recording upgrade on PRF/POW platforms
	3VRP004A	Libra 4000 recorder rack mounted platform
	3VRP005A	Libra 5000 recorder rack mounted platform
	DFI-CAB-LIB-01	Digital extension cable 5m for 3REC001C
	DFI-CAB-LIB-01	Analogue cable 5m for 3REC002G/H

	DFI-CAB-LIB-04A	Primary rate cable 5m for 3REC003A/B
	DFI-CAB-LIB-05	Analogue cable 5m for 3REC002E/F
	DFI-EKI-CER	DataVoice Screen Recording server license - per server
	DFI-EKI-CER-AML	Archive module license - per seat
	DFI-EKI-CER-SRA19	Screen seat license - per seat (1 - 19)
	DFI-EKI-CER-SRA199	Screen seat license - per seat (100 - 199)
	DFI-EKI-CER-SRA49	Screen seat license - per seat (20 - 49)
	DFI-EKI-CER-SRA499	Screen seat license - per seat (200 - 499)
	DFI-EKI-CER-SRA500+	Screen seat license - per seat (500+)
	DFI-EKI-CER-SRA99	Screen seat license - per seat (50 - 99)
	DFI-EKI-CON	DataVoice Screen Recording configurator license - per system
	DFI-EKI-SW-UPG	Ad hoc DataVoice Screen Recording software and license upgrade fee - 30% of total software and license costs
	DFI-NEX-API-SW	Nexus/Libra Integration Toolkit
	DFI-NEX-API-SW-IL	Nexus/Libra integration software license
	DFI-NEX-API-SW-SL	Nexus integration client license - per user
	DFI-NEX-API-SW-UPG	Ad hoc Nexus/Libra integration software and license upgrade fee - 30% of total software and license costs
	DFI-NEX-LIC-AS	Nexus MTMS Application Server software - per server
	DFI-NEX-LIC-HM	Nexus MTMS Health monitoring - per product monitored
	DFI-NEX-LIC-PT	Nexus MTMS Storage & Archive - per connected channel
	DFI-NEX-LIC-ST	Nexus MTMS Storage & Archive - per 50 connected channels
	DFI-NEX-LIC-SW	Nexus MTMS software - main bundle
	DFI-NEX-LIC-SW-UPG	Ad hoc Nexus MTMS software and license upgrade fee - 30% of total software and license costs
	DFI-NEX-LIC-XLK-SW-IL	Transaction linking software
	DFI-NEX-LIC-XLK-SW-SL	Transaction linking seat license - per seat

	DVR-ALC-SW	Alcatel recording control software
	DVR-CJT-SW	Cisco Call Manager JTAPI recording control software
	DVR-GEN-SW	Genesys recording control software
	DVR-LIB-API-SW	Libra API Toolkit
	DVR-LIB-LIC-AQ	Libra recorder software
	DVR-LIB-LIC-ARCH	Single archiving rule license
	DVR-LIB-LIC-HMA	Alarm notification license - per system
	DVR-LIB-LIC-IPRP	Recorded IP channel license - per channel
	DVR-LIB-LIC-L	Recorded analogue channel license - per channel
	DVR-LIB-LIC-NS	Enterprise network storage license - per system
	DVR-LIB-LIC-NVS	NVisage client license - per user
	DVR-LIB-LIC-PB	WebRecall client license - per user
	DVR-LIB-LIC-PB-ACELP	ACELP decoding license - per user
	DVR-LIB-LIC-PB-G729	G.729a decoding license - per user
	DVR-LIB-LIC-SR	Single Network storage license - per rule
	DVR-LIB-LIC-TAG-CCL	Libra TagActive service client license - per user
	DVR-LIB-LIC-U	Recorded digital extension channel license - per channel
	DVR-LIB-POW	Libra 4200 recorder rack mounted platform
	DVR-LIB-PRF	Libra 3200 recorder rack mounted platform
	DVR-LIB-RAQS-SW	Libra RAQS API Toolkit
	DVR-LIB-SW-UPG	Ad hoc Libra software and license upgrade fee - 30% of total software and license costs
	DVR-LIL-ALC-SW	Alcatel CTI
	DVR-LIL-CJT-SW	Cisco Call Manager JTAPI CTI
	DVR-LIL-DES-H16	16 x VoIP (Protocol Activation) acquisition unit - Desktop
	DVR-LIL-DES-H24	24 x VoIP (Protocol Activation) acquisition unit - Desktop
	DVR-LIL-DES-H32	32 x VoIP (Protocol Activation) acquisition unit - Desktop
	DVR-LIL-DES-H40	40 x VoIP (Protocol Activation) acquisition unit - Desktop
	DVR-LIL-DES-H48	48 x VoIP (Protocol Activation) acquisition unit - Desktop

	DVR-LIL-DES-H8	8 x VoIP (Protocol Activation) acquisition unit - Desktop
	DVR-LIL-DES-I16	16 x VoIP (Voice Activation) acquisition unit - Desktop
	DVR-LIL-DES-I24	24 x VoIP (Voice Activation) acquisition unit - Desktop
	DVR-LIL-DES-I32	32 x VoIP (Voice Activation) acquisition unit - Desktop
	DVR-LIL-DES-I40	40 x VoIP (Voice Activation) acquisition unit - Desktop
	DVR-LIL-DES-I48	48 x VoIP (Voice Activation) acquisition unit - Desktop
	DVR-LIL-DES-I8	8 x VoIP (Voice Activation) acquisition unit - Desktop
	DVR-LIL-DES-L8U8	8 x Analogue and 8 x Digital line acquisition unit - Desktop
	DVR-LIL-DES-U16	16 x Digital line acquisition unit - Desktop
	DVR-LIL-GEN-SW	Genesys CTI
	DVR-LIL-RAC-H16	16 x VoIP (Protocol Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-H24	24 x VoIP (Protocol Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-H32	32 x VoIP (Protocol Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-H40	40 x VoIP (Protocol Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-H48	48 x VoIP (Protocol Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-H8	8 x VoIP (Protocol Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-I16	16 x VoIP (Voice Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-I24	24 x VoIP (Voice Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-I32	32 x VoIP (Voice Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-I40	40 x VoIP (Voice Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-I48	48 x VoIP (Voice Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-I8	8 x VoIP (Voice Activation) acquisition unit - Rackmount
	DVR-LIL-RAC-L48	48 x Analogue line acquisition unit - Rackmount
	DVR-LIL-RAC-L8	8 x Analogue line acquisition unit - Rackmount
	DVR-LIL-RAC-L8U8	8 x Analogue and 8 x Digital line acquisition unit - Rackmount
	DVR-LIL-RAC-U48	48 x Digital line acquisition unit - Rackmount
	DVR-RCO-API-SW	Recording Controller Toolkit
	DVR-RCO-API-SW-IL	Recording control integration software license

	DVR-RCO-API-SW-SL	Recording control integration client license - per user
	DVR-RCO-SDK-SW	Recording Controller SDK
	DVR-RIC-LIC-ACM-FRS	Free seating license - per configured group per switch plug-in
	DVR-RIC-LIC-ACM-SWI	Switch license - per switch plug-in
VOICE		
OpenTouch Business Edition / Multimedia Services Platforms		
	3BA03242AC	OpenTouch Business Edition 1.2 Server with pre-installed software, Software release and USB dongle providing advanced business commu nication services for up to 500 users
	3BA03243AC	OpenTouch Business Edition 1.2 Server with pre-installed software, Software release and USB dongle providing advanced business commu nication services for up to 1500 users
	3BA03246AC	Multimedia application 1.2 Server with pre-installed software and Software release providing advanced business communication service s for up to 1500 users as an applicative add-on to OXE R10.1
	3BA27768AA	USB Dongle for OpenTouch
	3BA00788AC	OpenTouch™ Business Edition 1.2 Server 500 platform with pre-installed software
	3BA00789AC	OpenTouch™ Business Edition 1.2 Server 1500 platform with pre-installed software
	3BA00792AC	OpenTouch™ Multimedia Services 1.2 Server 1500 platform with pre-installed software
OpenTouch Business Edition / Multimedia Services Software		
	3BA09450JA	SIP user Bypass
	3BA09451JA	Audio and Data ACS ports
	3BA09452JA	GVP ports
	3BA09453JA	GVP TTS ports
	3BA09460JA	IMAP PORTS
	3BA09470JA	OpenTouch™ Multimedia Service - 1 remote extension bypass
	3BA09398JA	Automated Attendant Services including TTS capabilities license
	3BA09399JA	Base fax server including 50 FAX users
	3BA09400JA	1 audio port for Automated Attendant and Messaging Services license
	3BA09401JA	2 conferencing ports for N-Party multimedia conferencing services license

	3BA09402JA	2 FAX media processing port license
	3BA09403JA	8770 PKI service for enhanced centralised certificate management and other security services such as IP Sec client 8770, SSH and SFT P OXE license
	3BA09404JA	8770 System Topology option license
	3BA09405JA	8770 1 Additional administrator session option license
	3BA09437JA	OpenTouch™ SIP trunk license
	3BA09445JA	TTS license - Systems prompts ports first language
	3BA09446JA	TTS license - Systems prompts ports additional languages
	3BA09447JA	TTS license - Messaging and Automated Attendant ports first language
	3BA09448JA	TTS license - Messaging and Automated Attendant ports additional languages
	3BA09542JA	8770 System Active directory option license
	3BA09557JA	Dummy item for blank add-on order on OpenTouch
	3BA09406JA	Base USER license providing access to advanced business communication services for OpenTouch™ 1.0 users
	3BA09407JA	Per user option completing OpenTouch™ User license with MyIC Desktop (PC) client services
	3BA09408JA	User Mobile BlackBerry option completing OpenTouch™ User license with MyIC Mobile client services
	3BA09499JA	User Mobile Android option completing OpenTouch™ User license with MyIC Mobile client services
	3BA09500JA	User Any Mobile option completing OpenTouch™ User license for cellular device w/o MyIC Mobile client sw
	3BA09501JA	User Tablet iPad option completing OpenTouch™ User license with MyIC Mobile client services
	3BA09523JA	Base USER license providing access to advanced business communication services for OpenTouch™ users
	3BA09523JU	Base USER license providing access to advanced business communication services for upgrade users OpenTouch™ 1.0 to 1.x
	3BA09530JA	User option completing OpenTouch™ Standard user license with MyIC Mobile client services for Any Mobile
	3BA09409JA	OpenTouch™ User license providing access to advanced business communication services
	3BA09410JA	Per user option completing OpenTouch™ Standard user license with MyIC Desktop (PC) client services

	3BA09411JA	User option completing OpenTouch™ Standard user license with MyIC Mobile client services for Blackberry
	3BA09412JA	User option completing OpenTouch™ Standard user license with MyIC Mobile client services for Windows mobile
	3BA09413JA	User option completing OpenTouch™ Standard user license with MyIC Mobile client services for Android
	3BA09414JA	User option completing OpenTouch™ Standard user license with MyIC Mobile client services for iPhone
	3BA09415JA	User option completing OpenTouch™ Standard user license with MyIC Mobile client services for Nokia
	3BA09416JA	Standard User Digital Device license
	3BA09417JA	Standard User Analog Device license
	3BA09418JA	Standard User IP Device license
	3BA09419JA	Standard User SIP Device license
	3BA09421JA	Standard User WLAN Device license
	3BA09422JA	User option completing OpenTouch™ user license with voice mail services
	3BA09423JA	User option completing OpenTouch™ user license with Conferencing services
	3BA09424JA	User option completing OpenTouch™ user license with fax services
	3BA09425JA	1 additional language for Voice System prompts, Voice mail services, Automated Attendant, Text-to-Speech services
	3BA09426JA	8770 Alarm User option license
	3BA09427JA	8770 Performance User option license
	3BA09428JA	8770 Metering User option license
	3BA09429JA	8770 Ticket Collector User option license
	3BA09430JA	8770 Web Directory User option license
	3BA09431JA	8770 Network Unified User Management User option license
	3BA09432JA	OpenTouch™ Management API User option license
	3BA09433JA	Management OpenTouch™ Multimedia Services Configuration User option license
	3BA09434JA	Management OpenTouch™ Multimedia Services Alarm User option license
	3BA09435JA	Management OpenTouch™ Multimedia Services Performance User option license

	3BA09436JA	ABC/QSIG networking option software license
	3BA09455JA	Management OpenTouch™ MCS Configuration User option license
	3BA09456JA	Management OpenTouch™ MCS Alarm User option license
	3BA09457JA	Management OpenTouch™ MCS Performance User option license
	3BA09459JA	8770 Unified Management User option license
	3BA09478JA	Free alarm user option license
	3BA09479JA	Free performance user option license
	3BA09480JA	Free metering user option license
	3BA09481JA	Free ticket collector user license
	3BA09482JA	Free web directory user option license
	3BA09543JA	8770 SNMP proxy User option license
	3BA09556JA	Free SNMP proxy User option license
	3BA27786AA	OpenTouch™ Business Edition 1.2 redundant OXE R10.1 SW installation
	3BA09514JA	OpenTouch™ Business Edition / Hosted Minor Upgrade
	3BA09515JA	OpenTouch™ Business Edition / Hosted Major Upgrade
	3BA09517JA	OpenTouch™ Multimedia Services Minor upgrade
	3BA09518JA	OpenTouch™ Multimedia Services Major upgrade
	3BA09521JA	Server 500 - Devices capacity license
	3BA09522JA	Server 1500 - Devices capacity license
Enterprise Base System - IP Communication Server System Cabinets		
	3BA00617CB	OmniPCX Enterprise equipped with an Appliance Server IBM Maokong, 2GB of memory (available from OXE R10.0)
	3BA00678CB	OmniPCX Enterprise equipped with an Appliance Server HP DL120 G7, 2GB of memory (available from OXE R10.0)
OmniPCX Common hardware		
	3EH73006AB	Digital Public Access T0 BRA8 Board - 8 Basic Rate Accesses
	3EH73031AE	APA8 Analog trunk access board for 8 trunk lines
	3EH76037AA	Digital Public Access Board - 1 Primary Rate E1 T2 Access
	3EH73050AB	Digital interfaces board UAI16-1 : 16 digital interfaces

	3EH73092AB	Analog Interfaces Board SLI16-2 : 16 analog interfaces
	3BA00729AA	“Passive Communication Server” board equipped with CS-2 CPU Board with SDRAM 1GBytes and hard disk
	3BA00758AA	pack including one GA3 board aquipped with one additional ARMADA board
	3BA00767AA	Module link kit 1 for the first additional expansion module includes 2 x HSL1 daugtherboards, one PowerMEX controller board and one uplink cable
	3BA00768AA	Module link kit 2 for the second additional expansion module includes 1 x HSL2 daugtherboard, one PowerMEX controller board and one uplink cable
	3BA23275AB	ARMADA daughter board for 30 additional compression pathes
	3EH73084AE	Gateway Driver CPU (GD-3 board)
	3EH73084AF	CPU applicative board (GA-3 board)
	3EH76031AD	SATA Hard disk for CPU card Call Server
	3BA00406AB	Rack 3 module, with 230 V power supply (must be used with external battery and rack)
	3BA27135AA	Kit for Common Hardware battery mounting in standard 19 inch rack
	3EH76034AA	Blind slot stiffner (x1)
	3EH75001AB	Mounting kit for Rack 3
	3EH75012AB	Power back-up rack kit
	3EH76181AA	Rack charger 48V/14AH without rectifier
	3EH76185AA	Rectifier 500W for rack charger
	3EH76156AA	7AH/12V battery
	3EH76090AG	UPS range : Power back-up 185W/1H
	3EH76155AA	Rack box for external batteries 12V
OmniPCX Crystal Hardware		
	3BA23064AC	PCM2 board, pulse code modulation board (1)
	3BA23254AB	NPRAE-2 board 2 x T2 accesses
	3BA23265AD	e-Z32-2 board, 32 anolog interfaces
	3BA23266AA	e-UA32 board, 32 UA interfaces
	3BA00180AB	INTOF2 pack including 2 x INTOF2 boards + cable for connection of peripheral ACT on main ACT
	3BA00443AB	VoIP access board including INT-IP2 board with 2 GIP4-1 cards
	3BA00445AB	VoIP access board including INT-IP2 board with 2 GIP4-4 cards

	3BA00759AA	VoIP access board INT-IP3 board including one 10/100/1000 BT connecting card
	3BA00760AA	Pack with one VoIP access board INT-IP3 board + one 10/100/1000 BT connecting card+ one ARMADA daughter board for 30 additional com pression pathes
	3BA00760AB	Pack with one VoIP access board INT-IP3 board + one 10/100/1000 BT connecting card+ two ARMADA daughter boards for 60 additional co mpression pathes
	3BA00760AC	Pack with one VoIP access board INT-IP3 board + one 10/100/1000 BT connecting card+ three ARMADA daughter boards for 90 additional compression pathes
	3BA23193AC	INT-IP2 board: Board for spare
	3BA23241AA	GPA2 board : conf 29, Dynamic + Static (4 language) Voice Guide
	3BA23243AA	10/100BASE-T connector
	3BA23263AA	GIP4-4 board
	3BA23274AB	VoIP access board INT-IP3 board
	3BA23278AA	10/100/1000 BT connecting card
	3BA00071AD	M3 empty cabinet
	3BA27118AA	ACT28 mounting kit for installation in data cabinet
	3BA27121AA	PSAL and 48V data cabinet (ACT) connecting kit
	3BA27134AA	ACT shipment kit
	3BA56007AA	ACT28 shelf: Shelf 12U/28 slots
	3BA56064AM	M3 packed doors front & rear
	3BA56066AA	M3 packed lateral sides
	3BA56067AA	M2/M3 top cover packed
	3BA56097AA	M2/M3 fitting part. cables
	3BA26274AA	Power supply for MI 220V/600W
	3BA27305AA	PSC rectifier cabinet
	3BA57185AA	48V/65 AH battery elements
	3BA57186AA	48V/65 AH battery box + connection kit
	3BA28224AA	Cable (2 meters length) between the 48Volts DC charger and the 48Volts ACT in data rack format
	3BA58019AA	15 m MDF TY2 96pts DIN cable for PRA, BPRA, PCM (120 ohm) boards
	3BA58020AB	15 m MDF TY1 64pts DIN cable for UA, Z, NDDI, BRA boards
	3BA58027AA	15 m MDF TY4 96pts DIN cable from CPU to MDF

OmniPCX Software		
	3BA00570AA	Premium pack 50 includes ARS, accounting, configuration licenses for e-CS 50 engine and embedded voice guides license
	3BA00570AB	Premium pack 80 includes ARS, accounting, configuration licenses for e-CS 80 engine and embedded voice guides license
	3BA00570AC	Premium pack 150 includes ARS, accounting, configuration licenses for e-CS 150 engine and embedded voice guides license
	3BA00570AD	Premium pack 350 includes ARS, accounting, configuration licenses for e-CS 350 engine and embedded voice guides license
	3BA00571AA	Privilege pack 50 includes A4645 engine license, A4645 users for e-CS 50 engine, ARS, accounting, configuration licenses for e-CS 50 engine and embedded voice guides license
	3BA00571AB	Privilege pack 80 includes A4645 engine license, A4645 users for e-CS 80 engine, ARS, accounting, configuration licenses for e-CS 80 engine and embedded voice guides license
	3BA00571AC	Privilege pack 150 includes A4645 engine license, A4645 users for e-CS 150 engine, ARS, accounting, configuration licenses for e-CS 150 engine and embedded voice guides license
	3BA00571AD	Privilege pack 350 includes A4645 engine license, A4645 users for e-CS 350 engine, ARS, accounting, configuration licenses for e-CS 350 engine and embedded voice guides license
	3BA00535AA	Node pack 50 includes corporate networking license for e-CS 50 engine and 4x H323 network link license
	3BA00535AB	Node pack 80 includes corporate networking license for e-CS 80 engine and 4x H323 network link license
	3BA00536AA	Node pack 50 includes corporate networking license for e-CS 50 engine, 4x H323 network link license and A4645 users for e-CS 50 engine
	3BA00536AB	Node pack 80 includes corporate networking license for e-CS 80 engine, 4x H323 network link license and A4645 users for e-CS 80 engine
	3BA00537AA	Node pack 50 includes corporate networking license for e-CS 50 engine, 4x H323 network link license and A4635 users for e-CS 50 engine
	3BA00537AB	Node pack 80 includes corporate networking license for e-CS 80 engine, 4x H323 network link license and A4635 users for e-CS 80 engine
	3BA09046JA	Software License for “Passive Communication Server” (PCS)

	3BA09976AA	Software license for the OmniPCX Enterprise software engine with the value 50 users
	3BA09977AA	Software license for the OmniPCX Enterprise software engine with the value 80 users
	3BA09978AA	Software license for the OmniPCX Enterprise software engine with the value 150 users
	3BA09979AA	Software license for the OmniPCX Enterprise software engine with the value 350 users
	3BA09980AA	Software license for the OmniPCX Enterprise software engine with the value 500 users
	3BA09981AA	Software license upgrade for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09982AA	Software license upgrade for the OmniPCX Enterprise software engine between the value 81 to 150 users
	3BA09983AA	Software license upgrade for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09984AA	Software license upgrade for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09985AA	Software license upgrade to increase the size of the OmniPCX Enterprise software engine with additional 500 users
	3BA09976AB	Software license for Physical users up to 50 users
	3BA09977AB	Software license for Physical users up to 80 usagers
	3BA09978AB	Software license for Physical users up to 150 users
	3BA09979AB	Software license for Physical users up to 350 users
	3BA09980AB	Software license for Physical users up to 500 users
	3BA09981AB	Physical users upgrade software license from 51 to 80 users
	3BA09982AB	Physical users upgrade software license from 81 to 150 users
	3BA09983AB	Physical users upgrade software license from 151 to 350 users
	3BA09984AB	Physical users upgrade software license from 351 to 500 users
	3BA09985AB	Physical users upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09407AA	e-Communication Server (e-CS) redundancy software license
	3BA09407AB	Com Server (e-CS TELEPHONY) duplication license
	3BA09048JA	Software license for the Alcatel-Lucent Smart Call which simplifies how users initiate calls, being able to make a call directly from your PC screen by simply highlighting the telephone number,

	3BA09077JA	License for usage of the IME (INPUT METHOD ENGINE) -1 USER
	3BA09088JA	Analog user license
	3BA09089JA	Standard UA license - 1 user
	3BA09090JA	Business UA license - 1 user
	3BA09091JA	Call by Name License - 1 user
	3BA09092JC	CLIP on Z interface license - 1 user
	3BA09134JA	Freedesktop -1 user
	3BA09135JA	Smartcall -1 user
	3BA09986AA	Software license for Free Desktop Environment
	3BA03057AB	Alcatel-Lucent OmniPCX Enterprise Dynamic Starter Pack includes the DECT/PWT engine license and the first 20 mobile users
	3BA09093JA	Remote Extension license - 1 user
	3BA09097JA	Encryption & Autenthication License for Mobile DECT/PWT 1 user
	3BA09098JA	1 additional Mobile Executive IP Touch user
	3BA09110JA	License for Mobile IPTouch terminal 1 user
	3BA09593AA	Notification server up to 50 alarms software license
	3BA09597AA	Notification server upgrade from 50 to 300 alarms software license
	3BA09598AA	Notification server upgrade from 300 to 800 alarms software license
	3BA09599AA	Notification server upgrade for more than 800 alarms software license
	3BA00584AA	The Infocenter pack is a software pack. It includes Infocenter and Alcatel-Lucent Hotel Link licenses for a better price positioning
	3BA09511AA	Software license for the meet-me conference
	3BA09512AA	Voice guides recording from Reflexes sets software license
	3BA09513AA	Multilingual voice prompts software license
	3BA09560AA	Embedded voice guides software license
	3BA09562AA	Infocenter software license
	3BA09563AA	Additional S0 services software license
	3BA09564AA	Additional safety services software license
	3BA09663AA	Voice detection channels software license
	3BA09668AA	Compressed calls, software licence

	3BA09482AA	Master conference service software license for the OmniPCX Enterprise software engine with the value 80 users
	3BA09483AA	Master conference service software license for the OmniPCX Enterprise software engine with the value 150 users
	3BA09484AA	Master conference service software license for the OmniPCX Enterprise software engine with the value 500 users
	3BA09486AA	Master conference service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09812AA	Master conference service software license for the OmniPCX Enterprise software engine with the value 50 users
	3BA09813AA	Master conference service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09882AA	Master conference service software license for the OmniPCX Enterprise software engine with the value 350 users
	3BA09883AA	Master conference service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09884AA	Master conference service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09885AA	Master conference service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09951AA	Master conference service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09572AA	Multi Tenant service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09573AA	Multi Tenant service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09574AA	Multi Tenant service software license for the OmniPCX Enterprisesoftware engine with the value of 500 users
	3BA09576AA	Multi Tenant service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users

	3BA09816AA	Multi Tenant service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09817AA	Multi Tenant service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09890AA	Multi Tenant service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09891AA	Multi Tenant service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09892AA	Multi Tenant service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09893AA	Multi Tenant service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09953AA	Multi Tenant service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09579AA	Priority call service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09580AA	Priority call service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09581AA	Priority call service software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09583AA	Priority call service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09818AA	Priority call service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09819AA	Priority call service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09894AA	Priority call service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09895AA	Priority call service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users

	3BA09896AA	Priority call service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09897AA	Priority call service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09954AA	Priority call service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09565AA	Call Restriction service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09566AA	Call Restriction service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09567AA	Call Restriction service software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09569AA	Call Restriction service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09814AA	Call Restriction service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09815AA	Call Restriction service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09886AA	Call Restriction service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09887AA	Call Restriction service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09888AA	Call Restriction service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09889AA	Call Restriction service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09952AA	Call Restriction service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09470AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license for the OmniPCX Enterprise software engine with the value of 80 users

	3BA09471AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09472AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09474AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license upgrade for the OmniPCX Enterprise software engine between the value 80 and 150 users
	3BA09503AA	DISA service software license
	3BA09505AA	Automated attendant up to 6 voice guides software license
	3BA09506AA	Automated attendant over 6 voice guides software license
	3BA09507AA	Automated attendant software license upgrade above 6 voice guides
	3BA09820AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09821AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license upgrade for the OmniPCX Enterprise software engine between the value 50 and 80 users
	3BA09898AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license for the OmniPCX Enterprise software engine with the value of 350 users.
	3BA09899AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license upgrade for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09900AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license upgrade for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09901AA	Automatic Route Selection service and Automatic voice overflow between Media Gateway software license upgrade for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09955AA	Automatic Route Selection and Voice Overflow service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09031JA	IP Desktop Softphone software license

	3BA09100JA	License for Standard IP - 1 user
	3BA09101JA	License for Business IP - 1 user
	3BA09556AA	Integrated gatekeeper software license
	3BA09558AA	H323 network link software license
	3BA09643AA	G723.1 server software license
	3BA09644AA	G729A server software license
	3BA09646AA	G729A client software license
	3BA09180JA	SIP SEPLOS license 1 user (SEPLOS= SIP End Point Level Of Service)
	3BA09181JA	SIP SEPLOS migration license 1 user (SEPLOS= SIP End Point Level Of Service)
	3BA09557AA	SIP gateway software license
	3BA09559AA	SIP network link software license
	3BA09559AB	Software license for Bypass SIP Network Link
	3BA00797AA	OpenTouch™ SBC -1 SIP CALL / SIP NTWRK LINK PACK
	3BA00797AB	OT-SBC pack containing one SBC SIP call and one SIP network link (for OpenTouch)
	3BA09502JA	OpenTouch™ SBC software license R1.0
	3BA09503JA	OpenTouch™ SBC software - Engine
	3BA09504JA	OpenTouch™ SBC software - 1 SIP call
	3BA09505JA	OpenTouch™ SBC software - 1 remote user
	3BA09506JA	OpenTouch™ SBC software - 1 SRTP-RTP session
	3BA09507JA	OpenTouch™ SBC software redundancy - Engine
	3BA09508JA	OpenTouch™ SBC software redundancy - 1 SIP call
	3BA09510JA	OpenTouch™ SBC software redundancy - 1 SRTP-RTP session
	3BA09509JA	OpenTouch™ SBC software redundancy - 1 remote user
	3BA09183JA	ABC-F on IP trunk group license
	3BA09463AA	ABC Network service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09464AA	ABC Network service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09465AA	ABC Network service software license for the OmniPCX Enterprise software engine with the value of 500 users

	3BA09467AA	ABC Network service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09561AA	Fax server on ABC-A link software license
	3BA09822AA	ABC Network service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09823AA	ABC Network service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09902AA	ABC Network service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09903AA	ABC Network service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09904AA	ABC Network service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09905AA	ABC Network service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09956AA	ABC Network service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09504AA	Integrated metering reports software license
	3BA09414AA	Accounting service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09415AA	Accounting service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09416AA	Accounting service software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09418AA	Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09824AA	Accounting service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09825AA	Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users

	3BA09906AA	Accounting service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09907AA	Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09908AA	Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09909AA	Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09957AA	Accounting service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09421AA	Local Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09422AA	Local Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09423AA	Local Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09425AA	Local Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09826AA	Local Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09827AA	Local Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09910AA	Local Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09911AA	Local Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09912AA	Local Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09913AA	Local Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users

	3BA09958AA	Local Ticket Accounting service software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09428AA	ABC Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09429AA	ABC Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09430AA	ABC Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09432AA	ABC Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09828AA	ABC Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09829AA	ABC Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09914AA	ABC Ticket Accounting service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09915AA	ABC Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09916AA	ABC Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09917AA	ABC Ticket Accounting service upgrade software license for the OmniPCX Enterprise software engine between the value 351and 500 users
	3BA09959AA	ABC Ticket Accounting service software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09456AA	Directory management service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09457AA	Directory management service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09458AA	Directory management service software license for the OmniPCX Enterprise software engine with the value of 500 users

	3BA09460AA	Directory management service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09836AA	Directory management service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09837AA	Directory management service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09926AA	Directory management service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09927AA	Directory management service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09928AA	Directory management service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09929AA	Directory management service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09963AA	Directory management service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09442AA	System Alarm management service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09443AA	System Alarm management service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09444AA	System Alarm management service software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09446AA	System Alarm management service software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09832AA	System Alarm management service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09833AA	System Alarm management service software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09918AA	System Alarm management service software license for the OmniPCX Enterprise software engine with the value of 350 users

	3BA09919AA	System Alarm management service software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09920AA	System Alarm management service software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09921AA	System Alarm management service software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09961AA	System Alarms management service for upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09435AA	Configuration management service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09436AA	Configuration management service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09437AA	Configuration management service software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09439AA	Configuration management service upgrade software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09830AA	Configuration management service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09831AA	Configuration management service upgrade software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09922AA	Configuration management service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09923AA	Configuration management service upgrade software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09924AA	Configuration management service upgrade software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09925AA	Configuration management service upgrade software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09960AA	Configuration management service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size

	3BA09449AA	Performance management service software license for the OmniPCX Enterprise software engine with the value of 80 users
	3BA09450AA	Performance management service software license for the OmniPCX Enterprise software engine with the value of 150 users
	3BA09451AA	Performance management service software license for the OmniPCX Enterprise software engine with the value of 500 users
	3BA09453AA	Performance management service software license for the OmniPCX Enterprise software engine between the value 81 and 150 users
	3BA09834AA	Performance management service software license for the OmniPCX Enterprise software engine with the value of 50 users
	3BA09835AA	Performance management service software license for the OmniPCX Enterprise software engine between the value 51 and 80 users
	3BA09930AA	Performance management service software license for the OmniPCX Enterprise software engine with the value of 350 users
	3BA09931AA	Performance management service software license for the OmniPCX Enterprise software engine between the value 151 and 350 users
	3BA09932AA	Performance management service software license for the OmniPCX Enterprise software engine between the value 251 and 350 users
	3BA09933AA	Performance management service software license for the OmniPCX Enterprise software engine between the value 351 and 500 users
	3BA09962AA	Performance management service software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09026JA	Alcatel-Lucent OmniPCX Enterprise minor upgrade stand-alone increased with additional 500 users software license : upgrade from release (N-1) to release N
	3BA09027JA	Alcatel-Lucent OmniPCX Enterprise minor upgrade network increased with additional 500 users software license : upgrade from release (N-1) to release N
	3BA09028JA	Alcatel-Lucent OmniPCX Enterprise major upgrade stand-alone increased with additional 500 users software license : upgrade from release (N-2) to release N
	3BA09029JA	Alcatel-Lucent OmniPCX Enterprise major upgrade network increased with additional 500 users software license : upgrade from release (N-2) to release N

	3BA09558JA	OmniPCX Enterprise Virtualization for tracking
	3BA09784AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 50 stand-alone software license : upgrade from release (N-1) to release N
	3BA09785AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 80 stand-alone software license : upgrade from release (N-1) to release N
	3BA09786AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 150 stand-alone software license : upgrade from release (N-1) to release N
	3BA09788AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 500 stand-alone software license : upgrade from release (N-1) to release N
	3BA09789AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 500+ stand-alone software license : upgrade from release (N-1) to release N
	3BA09790AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 50 network software license : upgrade from release (N-1) to release N
	3BA09791AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 80 network software license : upgrade from release (N-1) to release N
	3BA09792AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 150 network software license : upgrade from release (N-1) to release N
	3BA09794AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 500 network software license : upgrade from release (N-1) to release N
	3BA09795AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 500+ network software license : upgrade from release (N-1) to release N
	3BA09796AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 50) in a stand-alone configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09797AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 80) in a stand-alone configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09798AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 150) in a stand-alone configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N

	3BA09800AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 500) in a stand-alone configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09801AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the value over 500 (e-CS 500+) in a stand-alone configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09802AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 50) in a networked configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09803AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 80) in a networked configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09804AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 150) in a networked configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09806AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 500) in a networked configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09807AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the value over 500 (e-CS 500+) in a networked configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N.
	3BA09871AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 350 stand-alone software license : upgrade from release (N-1) to release N
	3BA09872AA	Alcatel-Lucent OmniPCX Enterprise minor upgrade for e-CS 350 network software license : upgrade from release (N-1) to release N
	3BA09873AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 350) in a stand-alone configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N
	3BA09874AA	Alcatel-Lucent OmniPCX Enterprise major software upgrade for a software engine at the maximum value (e-CS 350) in a networked configuration. A major software upgrade is applied when the system release goes at least from a release (N-2) to a release N

	3BA09493JA	Alcatel-Lucent OmniPCX Enterprise R10.1 software license
	3BA04234FA	IP Centralisation: OXE Service Contract
	3BA04235FA	IP Centralisation: OTUC Service Contract
	3BA04236FA	IP Centralisation: CCO Service Contract
	3BA04237FA	IP Centralisation: CCIVR Service Contract
	3BA04238FA	IP Centralisation: CCPRE Service Contract
	3BA09158FA	OXE IP Centralisation/Migration software license for e-CS 50
	3BA09159FA	OXE IP Centralisation/Migration software license for e-CS 80
	3BA09160FA	OXE IP Centralisation/Migration software license for e-CS 150
	3BA09161FA	OXE IP Centralisation/Migration software license for e-CS 350
	3BA09162FA	OXE IP Centralisation/Migration software license for e-CS 500
	3BA09163FA	OXE IP Centralisation/Migration software license for e-CS 500+
	3BA09164FA	OXE IP Centralisation/Migration software license for 500 additionnal users
	3BA09200JB	IP Centralization
Operator Attendant consoles		
	3BA03241RB	4059EE IP English Attendant pack including USB attendant keyboard, keys set, DVD attendant software and 4059EEE license
	3BA09069JA	Software license opening the Phone based Greeting Assistant position to perform the attendant function. This position can either be an IP Touch 4068, 4038 or 4039
OmniMessage		
	3BA09477AA	Alcatel-Lucent 4645 voice mail - Base engine software license
	3BA09479AA	Alcatel-Lucent 4645 voice mail - 1 additional language software license
	3BA09849AA	Alcatel-Lucent 4645 voice mail users - software license for entry level up to 30 users
	3BA27588AA	CD-ROM for Alcatel-Lucent 4645 voice guides
	3BA09657AA	Alcatel-Lucent 4645 voice mail users - software license for engine 80
	3BA09658AA	Alcatel-Lucent 4645 voice mail users - software license for engine 150
	3BA09660AA	Alcatel-Lucent 4645 voice mail users - software license for engine 500
	3BA09840AA	Alcatel-Lucent 4645 voice mail users - software license for e-CS engine 50
	3BA09938AA	Alcatel-Lucent 4645 voice mail users - software license for e-CS engine 350

	3BA09716AA	Alcatel-Lucent 4645 voice mail users - software license upgrade from e-CS engine 80 to e-CS engine 150
	3BA09841AA	Alcatel-Lucent 4645 voice mail users - software license from e-CS engine 50 to e-CS engine 80
	3BA09939AA	Alcatel-Lucent 4645 voice mail users - software license from e-CS engine 150 to e-CS engine 350
	3BA09940AA	Alcatel-Lucent 4645 voice mail users - software license from e-CS engine 250 to e-CS engine 350
	3BA09941AA	Alcatel-Lucent 4645 voice mail users - software license from e-CS engine 350 to e-CS engine 500
	3BA09965AA	Alcatel-Lucent 4645 voice mail users service upgrade software license increased with additional 500 users in relation with the OmniPCX Enterprise software engine size
	3BA09103JA	4645 EMAIL Value Pack -1 user
	3BA09478AA	Alcatel-Lucent 4645 networked voice mail Software license. Value pack
OmniVista Network Management application		
	3BA09358JA	8770 Ticket Collector Base 0 extension
	3BA09359JA	8770 Ticket Collector Base 250 extensions
	3BA09360JA	8770 Ticket Collector additional 10 extensions
	3BA09361JA	8770 Ticket Collector Addtional 100 extensions
	3BA09536JA	8770 SNMP proxy base 0 extension
	3BA09537JA	8770 SNMP proxy base 250 extensions
	3BA09538JA	8770 SNMP proxy additional 10 extensions
	3BA09539JA	8770 SNMP proxy additional 100 extensions
	3BA09330JA	8770 Start Pack Base 0 extension
	3BA09331JA	8770 Start Pack Base 250 extensions
	3BA09334JA	8770 Full Pack Base 0 extension
	3BA09335JA	8770 Full Pack Base 250 extensions
	3BA09336JA	8770 Full Pack additional 10 extensions
	3BA09337JA	8770 Full Pack additional 100 extensions
	3BA09340JA	8770 Metering additional 10 extensions
	3BA09338JA	8770 Metering Base 0 extension
	3BA09339JA	8770 Metering Base 250 extensions
	3BA09341JA	8770 Metering additional 100 extensions
	3BA09342JA	8770 Unified Management Base 0 extension

	3BA09343JA	8770 Unified Management Base 250 extensions
	3BA09344JA	8770 Unified Management additional 10 extensions
	3BA09345JA	8770 Unified Management additional 100 extensions
	3BA09346JA	8770 Alarms Base 0 extension
	3BA09347JA	8770 Alarms Base 250 extensions
	3BA09348JA	8770 Alarms additional 10 extensions
	3BA09349JA	8770 Alarms additional 100 extensions
	3BA09332JA	8770 Start Pack additional 10 extensions
	3BA09350JA	8770 Performance Base 0 extension
	3BA09351JA	8770 Performance Base 250 extensions
	3BA09352JA	8770 Performance additional 10 extensions
	3BA09353JA	8770 Performance additional 100 extensions
	3BA09333JA	8770 Start Pack additional 100 extensions
	3BA09354JA	8770 Directory Base 0 extension
	3BA09355JA	8770 Web Directory base 250 extensions
	3BA09356JA	8770 Web Directory additional 10 extensions
	3BA09357JA	8770 Web Directory additional 100 extensions
	3BA09512JA	8770 Active directory option
	3BA09362JA	8770 Topology Option
	3BA09364JA	8770 Add Client Licence for simultaneous administration (x1)
OmniTouch CC Standard Edition		
	3BA00628AA	Easy Contact Welcome Pack
	3BA09529AA	CCdistribution Contact Center Distribution Starter Pack including 5 agents + 1 mono site supervisor software license
	3BA09530AA	CCdistribution Contact Center Distribution server including 5 agents software license
	3BA09531AA	CCdistribution Contact Center Distribution additional 5 agents pack (up to 50) - software license
	3BA09532AA	CCdistribution Contact Center Distribution upgrade from starter to server software license
	3BA09538AA	ACR Advanced Call Routing database read software license

	3BA09654AA	CCdistribution Contact Center Distribution additional 5 agents pack over 50 agents software license
	3BA09743AA	ACR networking, software licence
	3BA09781AA	CCD EasyContact Pack for 5 agents (Without CCsupervision)
	3BA09782AA	Upgrade from CCD EasyContact toward Starter pack
	3BD19054AC	OTCC Standard or Premium Remote Agents - Crystal Hardware board, English
	3BA09533AA	CCsupervision Contact Center Supervision mono-site connection software License
	3BA09534AA	CCsupervision Contact Center Supervision multi-site connection software License
	3BA09847AA	CCsupervision CCS Light mono-site connection software license
	3BA09848AA	CCsupervision Contact Center Supervision software license upgrade form CCsupervision Light to CCsupervision
	3BH11419AA	WBM Wall Board Manager CD-ROM including software & documentation
	3BA09535AA	CRI Call Record Interface software license - access to CCD detailed call records
	3BA09536AA	WMI Workforce Management Interface software license
	3BA09537AA	RTI Real Time Interface software license
	3BA09541AA	CCTI Contact Center Telephony Interface Server including 5 agents software license
	3BA09542AA	CCTI Contact Center Telephony Interface 5 additional agents pack software license
	3BA09539AA	CCagent Softphone Contact Center Agent server including 5 agents software license
	3BA09540AA	CCagent Softphone Contact Center Agent 5 additional agents pack software license
	3BA09670AA	CCagent Nomadic software license
	3BH11591AB	CCagent/CCagent Softphone & CCTI CD-ROM including software & documentation
	3BA09543AA	CCoutbound Contact Center Outbound Server including 5 CCoutbound agents and relevant CSTA & virtual Z - Software license
	3BA09544AA	CCoutbound Contact Center Outbound 5 agents pack including relevant CSTA & virtual Z - Software license
	3BA09545AA	CCoutpredial Server including 5 CCpredictive dialling options for 5 CCoutbound agents and relevant CSTA & virtual Z - software license
	3BA09546AA	CCoutpredial additional 5 agents pack up to 50 CCoutbound agents including relevant CSTA & virtual Z - software license
	3BA09744AA	Scripting server 5 agents, software license

	3BA09745AA	Scripting 5 additional agents pack, software license
	3BH11547AB	CCoutbound Contact Center Outbound CD-ROM including CCoutbound and Predictive dialling option software & documentation
	3BH11649AB	Scripting Agents CD-ROM
OmniTouch CC Common Option		
	3BA09165KA	Alcatel-Lucent Omnitouch 4625 CCIVR Genesys Compact Ed /OTCC Premium Integration - 1 port
	3BA09191JA	OmniTouch Contact Center 4625 Interactive Voice Response CCivr SIP 1 Port
	3BA09279JA	CCIVR Software upgrade
	3BA09280JA	CCIVR Free of charge upgrade
	3BA09367JA	CCivr Software license R10.x
	3BA09367JU	CCivr Software license for upgrade R10.x
	3BA09368JA	CCivr master server
	3BA09369JA	CCivr easy server
	3BA09371JA	CCivr Digital Software License 10 ports
	3BA09371JB	Upgrade CCivr Digital Software License 10 ports
	3BA09372JA	CCivr SIP 1 port
	3BA09372JB	Upgrade CCivr SIP 1 port
	3BA09373JA	CCivr Software License for 2 fax on demand sessions (Input/Output)
	3BA09373JB	Upgrade CCivr Software License for 2 fax on demand sessions (Input/Output)
	3BA09374JA	CCivr Contact Center Integration and Queuing
	3BA09374JB	Upgrade CCivr Contact Center Integration and Queuing
	3BA09375JA	CCivr Database Read
	3BA09375JB	Upgrade CCivr Database Read
	3BA09376JA	CCivr TTS RealSpeak 1 language
	3BA09377JA	Ccivr TTS Realspeak Connector 2 sessions
	3BA09377JB	Upgrade Ccivr TTS Realspeak Connector 2 sessions
	3BA09378JA	Ccivr TTS Loquendo Connector 2 sessions
	3BA09378JB	Upgrade CCivr TTS Loquendo Connector 2 sessions
	3BA09379JA	CCivr TTS SDK 2 sessions

	3BA09379JB	Upgrade CCivr TTS SDK 2 sessions
	3BA09380JA	CCivr ASR Nuance Connector 2 sessions
	3BA09380JB	Upgrade CCivr ASR Nuance Connector 2 sessions
	3BA09381JA	Ccivr ASR Loquendo Connector 2 sessions
	3BA09381JB	Upgrade CCivr ASR Loquendo Connector 2 sessions
	3BA09382JA	CCivr ASR SDK 2 sessions
	3BA09382JB	Upgrade CCivr ASR SDK 2 sessions
	3BA27631AA	CCivr DVD-R TTS for other countries
	3BA27636AA	CCivr TTS Realspeak 2 sessions L1
	3BA27637AA	CCivr TTS Realspeak 2 sessions L2
	3BA27638AA	CCivr TTS Realspeak 2 sessions L3
	3BA27639AA	CCivr TTS Realspeak 2 sessions L4+
	3BA27640AA	CCivr ASR SDK 2 sessions
	3BA27641AA	CCivr TTS SDK 2 sessions
	3BA27691AA	CCIVR ASR NUANCE 2 Sessions First Language L1
	3BA27692AA	CIVR ASR NUANCE 2 Sessions Second Language L2
	3BA27693AA	CCIVR ASR NUANCE 2 Sessions Third and more Language L3
	3BA27694AA	CCIVR ASR LOQUENDO Connector 2 Sessions
	3BA27695AA	CCIVR TextToSpeech REALSPEAK Connector 2 Sessions
	3BA27696AA	CCIVR TextToSpeech LOQUENDO Connector 2 Sessions
	3BA27697AA	CCIVR ASR NUANCE Connector 2 Sessions
	3BA27724AA	CCIVR NMS SIP 8 ports
	3BA27725AA	CCIVR NMS SIP 32 ports
	3BA27726AA	CCIVR NMS SIP 64 ports
	3BA27727AA	CCIVR NMS SIP 128 ports
	3BA27728AA	Alcatel-Lucent Omnitouch 4625 CCIVR SIP - 1 port
	3BH11746AA	CCIVR Integration CD-ROM for Genesys Compact Edition / OTCC-Premium Edition
	3BH11970AA	CCivr Software Pack R10.x DVD-R
	3BR03423AA	CCivr Fax server Software License for 2 fax on demand sessions
	3BR03435AA	CCivr Digital Software License 10 ports

	3BR03436AA	CCivr Contact Center Integration and Queuing
	3BR03437AA	CCivr Database Read & Write
	3BH11617AB	Wallboard 6 lines of 16 color characters
	3BH11760AC	WALLBOARD PANEL PC 42 INCH
OmniTouch Unified Communication		
	3BA00691AA	Secondary server for Teamwork services and Voice broadcast, For Telephony, Messaging and One number services
	3BA00732AA	My Cellular Extension software pack for 1 user (includes the Remote Extension license)
	3BA00733AA	Dual mode option (Cellular/Wifi) of the My Instant Communicator mobile client for 1 user
	3BA00734AA	My Instant Communicator software mobility pack for 1 user (includes the Remote Extension license)
	3BA00735AB	Dual mode option (Cellular/Wifi) of the My Cellular Extension client for 1 user (includes the SIP license)
	3BA09033JA	Software license 2 ports for the voice broadcast function available in OmniTouch Unified Communications, OmniTouch My Teamwork and OmniTouch Automated Message Delivery System (AMDS) solutions
	3BA09105JA	Software license My Instant Communicator 1 user for the OmniTouch Unified Communications solution
	3BA09107JA	Optional software license for a secondary server of the conferencingand collaboration solution available in OmniTouch Unified Communications and OmniTouch My Teamwork
	3BA09108JA	Optional software license of video conferencing 1 user for the conferencing and collaboration solution available in OmniTouch Unified Communications and OmniTouch My Teamwork
	3BA09109JA	Optional software license Telephony services 4980 1 user for the OmniTouchUnified Communications solution
	3BA09116JA	Software license for the SMTP email connector of Fax Software
	3BA09118JA	Software license 1 user for Fax Software
	3BA09119JA	Software license 2 ports for Fax Software
	3BA09127JA	Optional software license for a secondary server of the OmniTouch Automated Message Delivery System (AMDS) solution

	3BA09136JA	Migration license for 1 user from OmniTouch 8660 My Teamwork to OmniTouch 8400 Instant Communications Suite
	3BA09150JA	Software license 2 ports for the voice broadcast function OmniTouch Automated Message Delivery System (AMDS)
	3BA09201JA	Optional software license for the high availability function of the OmniTouch Unified Communications Fax Server only, available in OmniTouch Unified Communications and as standalone solution
	3BA09217JA	OmniTouch 8660 My Teamwork HD video conferencing - 1 user
	3BA09219JA	OmniTouch 8670 AMDS software upgrade license - 1 user
	3BA09222JA	OmniTouch 8460 Advanced Communications Server audio conferencing license - 1 port
	3BA09223JA	OmniTouch 8460 Advanced Communications Server Web collaboration license - 1 port
	3BA09224JA	OmniTouch 8460 Advanced Communications Server message broadcast license - 1 port
	3BA09226JA	Voice messaging services license for "OmniTouch 8440 Messaging Software R6.x/OmniTouch 8400 Instant Communications Suite R6.x" 1 user
	3BA09227JA	Additional language license of voice messaging services for 1 "OmniTouch 8440 Messaging Software R6.x"/"OmniTouch 8400 Instant Communications
	3BA09228JA	Redundancy license of voice messaging services "OmniTouch 8440 Messaging Software R6.x"/"OmniTouch 8400 Instant Communications" for 1 user
	3BA09229JA	IMAP4 session license for "OmniTouch 8440 Messaging Software R6.x"/"OmniTouch 8400 Instant Communications Suite R6.x" voice messaging
	3BA09230JA	Text to Speech (TTS) feature for "OmniTouch 8440 Messaging Software R6.x"/"OmniTouch 8400 Instant Communications Suite R6.x" voice mail
	3BA09231JA	Additional language of the Text to Speech (TTS) feature for "OmniTouch 8440 Messaging Software R6.x"/"OmniTouch 8400 Instant Communications R6.x"
	3BA09232JA	OmniTouch 8460 Advanced Communications Server API license - 1 user
	3BA09233JA	Stand alone application
	3BA09234JA	OmniTouch 8460 Advanced Communications Server: G.729A codec license - 1 port
	3BA09235JA	First language of the Text to Speech (TTS) feature for OmniTouch 8440 Messaging Software R6.x/OmniTouch 8400 Instant Communications R6.x

	3BA09236JA	Second language of the Text to Speech (TTS) feature for "OmniTouch 8440 Messaging Software R6.x" / "OmniTouch 8400 Instant Communications R6.x"
	3BA09237JA	Third language of the Text to Speech (TTS) feature for "OmniTouch 8440 Messaging Software R6.x" / "OmniTouch 8400 Instant Communications R6.x
	3BA09238JA	My Instant Communicator Software ID for Windows Mobile for 1 user
	3BA09239JA	My Instant Communicator Software ID for BlackBerry for 1 user
	3BA09240JA	My Instant Communicator Software ID for Nokia for 1 user
	3BA09242JA	My Instant Communicator Software ID for iPhone Mobile for 1 user
	3BA09243JA	My Instant Communicator Software ID for Android Mobile for 1 user
	3BA09246JA	Voice messaging services license for 1 "OmniTouch 8400 Instant Communications Suite R6.x" user
	3BA09247JA	Migration license for 1 user from OmniTouch 8440 Messaging Software to OmniTouch 8400 Instant Communications Suite
	3BA09248JA	Free migration license of voice messaging services for 1 "OmniTouch 8400 Instant Communications Suite" user
	3BA09256JA	Optional software license for two additional Text To Speech ports for the OmniTouch Unified Communications solution
	3BA09758AA	My Phone 4980 Softphone option 10 users, software license
	3BA09763AA	Optional software license Voice access 2 ports for the OmniTouch Unified Communications solution
	3BA09764AA	Dashboard option 10 users, software license
	3BA09766AA	Optional software license Text To Speech 1 additional language for the OmniTouch Unified Communications solution
	3BA09767AA	Optional software license Multi-site for the OmniTouch Unified Communications solution
	3BA09852AA	Optional software license Text To Speech for the OmniTouch Unified Communications solution
	3BH11789AC	Factory integration service for OmniTouch 8440 R6.7 Messaging Software
	3EY99036AA	My Cellular Extension Software ID for Windows Mobile (including 1 SMS configuration token) for 1 user
	3EY99037AA	My Cellular Extension Software ID for BlackBerry for 1 user
	3EY99038AA	My Cellular Extension Software ID for Nokia (including 1 SMS configuration token) for 1 user

	3BA09728AA	Software licence for the Framework of OmniTouch Unified Communications & OmniTouch Web Services
	3BA09112JA	Software license My IP Touch Communicator 1 user (telephony presence, advanced directory lookup and call logging on IP Touch phone set 4038/4068)
	3BA09204JA	Migration license for 1 user for "OmniTouch 8450 FS R6.x" software/"OmniTouch 8400 ICS R6.x" fax services software
	3BA09205JA	Free migration license for 1 user for "OmniTouch 8450 FS R6.x" software/"OmniTouch 8400 ICS R6.x" fax services software
	3BA09212JA	My Cellular Extension software license for 1 user
	3BA09732AA	My Phone server and 10 users, software license
	3BA09733AA	My Phone 10 users, software license
	3BA09747AA	My Messaging server and 10 users, software license
	3BA09748AA	My Messaging 10 users, software license
	3BA09730AA	Free software licence for the interaction of the messaging and one number services of the OmniTouch Unified Communications solution with the OmniPCX Enterprise system
	3BA09750AA	My Assistant server 10 users, software license
	3BA09751AA	My Assistant 10 users, software license
	3BA09056JA	Optional software license for the high availability function of the OmniTouch Unified Communications solution (available for telephony,messaging and one number services only)
	3BA09058JA	Optional software license G.729A audio codec 1 port for the OmniTouchUnified Communications and OmniTouch My Teamwork solutions
	3BA09106JA	Software license of conferencing and collaboration 1 user available in OmniTouch Unified Communications and OmniTouch My Teamwork solutions
	3BA09215JA	OmniTouch 8660 Teamwork Services software upgrade - 1 user
	3BA09854AA	My Teamwork 10 users, software license
	3BA09856AA	Optional software license Audio conferencing 2 ports for the OmniTouch Unified Communications and OmniTouch My Teamwork solutions
	3BA09857AA	Optional software license Data conferencing 2 ports for the OmniTouch Unified Communications and OmniTouch My Teamwork solutions
	3BA09988AA	My Teamwork server and 10 users, software license including 4 audio ports and 2 data ports

CSTA interfaces		
	3BA09005AA	CSTA Monitoring beyond 9999 intances
	3BA09081JA	IP DR-link Recording software license including the first 5 ports (Dedicated Recording Link)
	3BA09082JA	IP DR-link record 5 additional ports software license
	3BA09515AA	CSTA Contact Center server 5 monitors includes the first 5 monitorings - software license
	3BA09516AA	CSTA server 5 additional monitorings pack software license
	3BA09517AA	CSTA pilots monitoring allows CCdistribution queues monitoring - software license
	3BA09518AA	CSTA IVR server including the first 5 IVR ports software license
	3BA09519AA	CSTA IVR 5 additional IVR ports pack software license
	3BA09520AA	DR-link Recording Base Application software license including the first 5 ports (Dedicated Recording Link)
	3BA09521AA	CSTA record 5 additional ports pack software license
	3BA09522AA	CSTA record networked server including the first 5 ports software license
	3BA09523AA	RSI Routing Services Interface Server - 5 agents for Genesys Integration software license
	3BA09524AA	RSI CC Routing Services Interface - additional 5 agents pack for Genesys Integration software license
	3BA09528JA	CSTA call recording (OmniPCX Record Suite) software license
	3BA09602AA	CSTA NICE recording software license
	3BA09656AA	CSTA call recording (Voice Logger) software license
	3BA09665AA	CSTA 500 bypass software license
	3BA09671AA	CSTA recording networked 5 additional ports pack software license
	3BA09715AA	RSI business 5 agents pack software license
TAPI/TSAPI Interfaces		
	3BA09525AA	TAPI Premium server including 5 clients software license
	3BA09526AA	TAPI Premium server 5 additional clients pack software license
	3BA09527AA	TSAPI server including the first 5 monitorings software license
	3BA09528AA	TSAPI server 5 additional monitorings pack software license
XML Interfaces		
	3BA09173JA	Telephony Web Services server software license, including 1 user

	3BA09174JA	Messaging Web Services server software license, including 1 user
	3BA09175JA	One number Web Services server software license, including 1 user
	3BA09176JA	Teamwork Web Services server software license, including 1 user
	3BA09177JA	Management Web Services server software license, including 1 user
	3BA09178JA	Software license Business IP, My IP Touch XML basic services 1 user
	3BA09179JA	IP Touch XML extended services" software license for 1 user
	3BA09207JA	Redundancy license for 1 "OmniTouch 8410 Instant Communications Web Services R6.x" user
	3BA09210JA	Migration license for 1 "OmniTouch 8410 Instant Communications Web Services R6.x" user
Audio devices optimized for UC		
	3BA27762AA	PLANTRONICS monaural DECT headset for the PC and deskphone EUR
	3BA27764AA	PLANTRONICS binaural DECT headset for the PC and deskphone EUR
Radvision Video solution		
	3BH11785AA	RADVISION iView Suite - Video multipoint control unit management system software (DVD)
	3BH11787AA	RADVISION ECS Pro - Gatekeeper system software (DVD)
	3BH11968AA	RADVISION iView Suite Alternate - Video multipoint control unit redundancy management system software (DVD)
	3BH12032AA	RADVISION SCOPIA - Video multipoint control unit model 5110 with Desktop and with iView Suite
	3BH12033AA	RADVISION SCOPIA - Video multipoint control unit model 5115 with Desktop and with iView Suite
	3BH12034AA	RADVISION SCOPIA - Video multipoint control unit model 5230 with Desktop and with iView Suite
	3BH12035AA	RADVISION Pathfinder Server - H.323 video gateway and gatekeeper - 10 ports included
	3BH12036AA	RADVISION Pathfinder Server - H.323 video gateway and gatekeeper - 20 ports included
	3BH12038AA	RADVISION Pathfinder - H.323 video gateway and gatekeeper - 10 additional ports
	3BH12039AA	RADVISION iView Suite - Video multipoint control unit management software license (25-ports RTU)
	3BH12040AA	RADVISION iView Suite - Bundled version to standalone version upgrade
	3BH12041AA	RADVISION iView Suite Alternate - Video multipoint control unit redundancy management software license (25-ports RTU)
	3BH12042AA	RADVISION ECS Pro - Gatekeeper software license (25-ports RTU)
	3BH12043AA	RADVISION SCOPIA 100 - Standalone ISDN gateway P10

	3BH12044AA	RADVISION SCOPIA 100 - Standalone ISDN gateway P20
	3BH12045AA	RADVISION SCOPIA 100 - Standalone ISDN gateway B40
	3BH12053AA	RADVISION SCOPIA - Video multipoint control unit model 5110 with Desktop Pro and with iView Suite
	3BH12054AA	RADVISION SCOPIA - Video multipoint control unit model 5115 with Desktop Pro and with iView Suite
	3BH12055AA	RADVISION SCOPIA - Video multipoint control unit model 5230 with Desktop Pro and with iView Suite
	3BH12064AA	Radvision Scopia Mobile - 25 Seats
	3BH12065AA	Radvision Scopia Mobile - 50 Seats
	3BH12066AA	Radvision Scopia Mobile - 100 Seats
	3BH12067AA	Radvision Scopia Mobile - 500 Seats
	3BH12079AA	RADVISION SCOPIA - Video multipoint control unit model 5105 with iView Suite and 5 clients desktop Pro/mobile
	3BH12080AA	Upgrade RADVISION SCOPIA ELITE 5105 (with 50 clients Pro/Mobile) -> RADVISION SCOPIA ELITE 5110 (with 100 clients Pro/Mobile)
	3BH12081AA	RADVISION SCOPIA - Video multipoint control unit model 5105 with iView Suite and 5 clients desktop Pro/mobile
	3BH12082AA	Upgrade RADVISION SCOPIA ELITE 5105 (with 50 clients Pro/Mobile) -> RADVISION SCOPIA ELITE 5110 (with 100 clients Pro/Mobile)
LifeSize Video endpoints solution		
	3BH11976AA	LifeSize Passport HD video system with one LifeSize Focus Camera (fixed focus HD camera with built-in microphone)
	3BH11977AA	LifeSize Passport HD video system with one LifeSize MicPod and one LifeSize pan-tilt-zoom HD Camera
	3BH11979AA	LifeSize Express 220 HD video system with one LifeSize MicPod and one LifeSize pan-tilt-zoom HD 10X Camera
	3BH11980AA	LifeSize Express 220 HD video system with one LifeSize Phone and one LifeSize pan-tilt-zoom HD 10X Camera

	3BH11981AA	LifeSize Team 220 HD video system with two LifeSize MicPods and one LifeSize pan-tilt-zoom HD 10X Camera
	3BH11982AA	LifeSize Team 220 HD video system with one LifeSize Phone and one LifeSize pan-tilt-zoom HD 10X Camera
	3BH11984AA	LifeSize Room 220 HD video system with one LifeSize pan-tilt-zoom HD 10X Camera
	3BH11985AA	LifeSize Room 220 HD video system with one LifeSize Phone and one LifeSize pan-tilt-zoom HD 10X Camera
	3BH12058AA	LifeSize Express 220 HD video system with one LifeSize MicPod and one LifeSize pan-tilt-zoom HD Camera
	3BH12059AA	LifeSize Express 220 HD video system with one LifeSize Phone and one LifeSize pan-tilt-zoom HD Camera
	3BH12060AA	LifeSize Team 220 HD video system with two LifeSize MicPods and one LifeSize pan-tilt-zoom HD Camera
	3BH12061AA	LifeSize Team 220 HD video system with one LifeSize Phone and one LifeSize pan-tilt-zoom HD Camera
	3BH12062AA	LifeSize Room 220 HD video system with one LifeSize pan-tilt-zoom HD Camera
	3BH12063AA	LifeSize Room 220 HD video system with one LifeSize Phone and one LifeSize pan-tilt-zoom HD Camera
	3BH12073AA	LifeSize Bridge 2200 - 16 Ports - Video multipoint control unit
	3BH12078AA	LifeSize Conference 220 HD video system with one LifeSize Phone and 3 LifeSize HD 10X Camera
	3BH12083AA	LifeSize Passport Connect video system with Logitech HD Camera
	3BH03011AA	LifeSize Digital MicPod (omnidirectional HD active microphone, touch-sensitive Mute button and “Mute and “In-Call LED indicators)
	3BH11978AA	LifeSize Express 220 HD video system (includes only the Codec unit)
	3BH11983AA	LifeSize Room 220 HD video system (includes only the Codec unit)
	3BH11996AA	LifeSize MicPod (omni-directional high definition active microphone with mute button and call status/mute indication lights)
	3BH11997AA	LifeSize Phone (high definition audio conference phone supported for use with the video systems only)
	3BH11998AA	LifeSize pan-tilt-zoom HD Camera 200

	3BH11999AA	LifeSize Focus (fixed focus HD camera with built-in microphone)
	3BH12000AA	LifeSize pan-tilt-zoom HD 10X Camera
	3BH12001AA	LifeSize pan-tilt-zoom HD Camera 200-F
	3BH12002AA	LifeSize Team 220 HD video system (includes only the Codec unit)
	3BH12013EU	Lifesize Power Cord - Europe
	3BH12021AA	LifeSize Power Supply for Cam 200 and Passport Codec
	3BH12022AA	LifeSize Power Supply for Video Codecs (except Passport)
	3BH12023AA	LifeSize Power Supply for Networker
	3BH12024AA	Lifesize Display 46 inch
	3BH12025AA	Lifesize Display 55 inch
	3BH12084AA	LifeSize Softphone for WINDOWS OS - Price per license for quantity (1-9 licenses)
	3BH12084AB	LifeSize Softphone for WINDOWS OS - Price per license for quantity (10-25 licenses)
	3BH12084AC	LifeSize Softphone for WINDOWS OS - Price per license for quantity (26-50 licenses)
	3BH12084AD	LifeSize Softphone for WINDOWS OS - Price per license for quantity (51-100 licenses)
	3BH12084AE	LifeSize Softphone for WINDOWS OS - Price per license for quantity > 100 licenses
	3BH12086AA	LifeSize Connections from end point access - 1 seat voucher (1 year)
	3BH12086AB	LifeSize Connections from end point access - 5 seats voucher (1 year)
	3BH12086AC	LifeSize Connections from end point access - 10 seats voucher (1 year)
	3BH12086AD	LifeSize Connections from end point access - 25 seats voucher (1 year)
	3BH12087AA	LifeSize Connections from computer access - 1 seat voucher (1 year)
	3BH12087AB	LifeSize Connections from computer access - 5 seats voucher (1 year)
	3BH12087AC	LifeSize Connections from computer access - 10 seats voucher (1 year)
	3BH12087AD	LifeSize Connections from computer access - 25 seats voucher (1 year)
	3BH01002AA	LifeSize UVC 1100 Server
	3BH01014AA	LifeSize UVC 3300 Server
	3BH01015AA	LifeSize Bridge 2200 - 8 ports - Video multipoint control unit
	3BH01016AA	LifeSize Bridge 2200 - 12 ports - Video multipoint control unit
	3BH05000AA	LifeSize UVC Video Center - Activation
	3BH05001AA	LifeSize UVC Video Center - Pack of 1 HD Recording & 250 HD Web Streams - Standard Edition
	3BH05001AB	LifeSize UVC Video Center - Pack of 5 HD Recordings & 500 HD Web Streams - Standard Edition

	3BH05001AC	LifeSize UVC Video Center - Pack of 10 HD Recordings & 750 HD Web Streams - Standard Edition
	3BH05001AD	LifeSize UVC Video Center - Pack of 20 HD Recordings & 1000 HD Web Streams - Standard Edition
	3BH05002AA	LifeSize UVC Video Center - Pack of 1 HD Recording & 250 HD Web Streams - Enterprise Edition
	3BH05002AB	LifeSize UVC Video Center - Pack of 5 HD Recordings & 500 HD Web Streams - Enterprise Edition
	3BH05002AC	LifeSize UVC Video Center - Pack of 10 HD Recordings & 750 HD Web Streams - Enterprise Edition
	3BH05002AD	LifeSize UVC Video Center - Pack of 20 HD Recordings&1000 HD Web Streams - Enterprise Edition
	3BH05003AA	LifeSize UVC Video Center - Upgrade - 1 HD Recording Port & 250 HD Web Streams - Standard to Enterprise Edition
	3BH05003AB	LifeSize UVC Video Center - Upgrade - 5 HD Recording Port & 500 HD Web Streams - Standard to Enterprise Edition
	3BH05003AC	LifeSize UVC Video Center - Upgrade - 10 HD Recording Port & 750 HD Web Streams - Standard to Enterprise Edition
	3BH05003AD	LifeSize UVC Video Center - Upgrade - 20 HD Recording Port & 1000 HD Web Streams - Standard to Enterprise Edition
	3BH05004AA	LifeSize UVC Video Center - Reflector (Pack of 250 HD Web Streams)
	3BH05005AA	LifeSize UVC Transit Server - Activation
	3BH05006AA	LifeSize UVC Transit Server - Pack of 5 traversals - Standard Edition
	3BH05006AB	LifeSize UVC Transit Server - Pack of 10 traversals - Standard Edition
	3BH05006AC	LifeSize UVC Transit Server - Pack of 25 traversals - Standard Edition
	3BH05006AD	LifeSize UVC Transit Server - Pack of 50 traversals - Standard Edition
	3BH05007AA	LifeSize UVC Transit Client - Activation
	3BH05008AA	LifeSize UVC Transit Client - Pack of 5 traversals - Standard Edition
	3BH05008AB	LifeSize UVC Transit Client - Pack of 10 traversals - Standard Edition
	3BH05008AC	LifeSize UVC Transit Client - Pack of 25 traversals - Standard Edition
	3BH05008AD	LifeSize UVC Transit Client - Pack of 50 traversals - Standard Edition
	3BH05009AA	LifeSize UVC Access - Activation
	3BH05011AA	LifeSize ClearSea Server CS150 - Additional 2500 Accounts
	3BH05012AA	LifeSize ClearSea Server CS300 - Additional 2500 Accounts
	3BH05013AA	LifeSize UVC Access - Pack of 25 Registrations & 10 Routed Calls - Standard Edition
	3BH05013AB	LifeSize UVC Access - Pack of 100 Registrations & 50 Routed Calls - Standard Edition

	3BH05013AC	LifeSize UVC Access - Pack of 250 Registrations & 100 Routed Calls - Standard Edition
	3BH05014AA	LifeSize UVC Video Engine for Microsoft Lync - Activation
	3BH05015AA	LifeSize UVC Video Engine for Microsoft Lync - Pack of 1 HD call - Standard Edition
	3BH05044AA	LifeSize UVC Multipoint - Activation
	3BH05045AA	LifeSize UVC Multipoint - 1 Flex port - Standard Edition
	3BH05045AB	LifeSize UVC Multipoint - 4 Flex ports - Standard Edition
	3BH05045AC	LifeSize UVC Multipoint - 8 Flex ports - Standard Edition
	3BH05045AD	LifeSize UVC Multipoint - 15 Flex ports - Standard Edition
	3BH05046AA	LifeSize Bridge 2200 - Clustering License
	3BH05047AA	LifeSize Bridge 2200 - Additional 4 ports
	3BH05048AA	LifeSize UVC Manager - Activation
	3BH05049AA	LifeSize UVC Manager - 1 seat - Standard Edition
	3BH05049AB	LifeSize UVC Manager - Pack of 5 seats - Standard Edition
	3BH05049AC	LifeSize UVC Manager - Pack of 10 seats- Standard Edition
	3BH05049AD	LifeSize UVC Manager - Pack of 25 seats - Standard Edition
	3BH11987AA	LifeSize Networker all-in-one enhanced gateway for integration between IP and ISDN networks
	3BH11988AA	Single device license for LifeSize Control (centralized control and easy to use reporting, web based interfaces and standards suppor t management)
	3BH11988AB	Single device license (quantity 11-24 licenses) for LifeSize Control (centralized control and easy to use reporting, web based inter faces and standards support management)
	3BH11988AC	Single device license (quantity 25-49 licenses) for LifeSize Control (centralized control and easy to use reporting, web based inter faces and standards support management)
	3BH11988AD	Single device license (quantity 50 or more licenses) for LifeSize Control (centralized control and easy to use reporting, web based interfaces and standards support management)
	3BH11989AA	Enterprise device license for LifeSize Control (centralized control and easy to use reporting, web based interfaces and standards su pport management)
	3BH12074AA	LifeSize Bridge 2200 - Additional 48 ports
	3BH12089AA	LifeSize ClearSea Server CS100 - Virtual Machine - Capacity 6 PORTS
	3BH12089AB	LifeSize ClearSea Server CS100 - Virtual Machine - Capacity 16 PORTS
	3BH12091AA	LifeSize ClearSea Server CS100 - Android Clients

	3BH12091AB	LifeSize ClearSea Server CS100 - iOS Clients
	3BH12092AA	LifeSize ClearSea Server CS150 - Virtual Machine - Capacity 26 PORTS
	3BH12092AB	LifeSize ClearSea Server CS150 - Virtual Machine - Capacity 50 PORTS
	3BH12092AC	LifeSize ClearSea Server CS150 - Virtual Machine - Capacity 100 PORTS
	3BH12093AA	LifeSize ClearSea Server CS150 - Android Clients
	3BH12093AB	LifeSize ClearSea Server CS150 - iOS Clients
	3BH12094AA	LifeSize ClearSea Server CS300 - Appliance Server - Capacity 26 PORTS
	3BH12094AB	LifeSize ClearSea Server CS300 - Appliance Server - Capacity 50 PORTS
	3BH12094AC	LifeSize ClearSea Server CS300 - Appliance Server - Capacity 100 PORTS
	3BH12095AA	LifeSize ClearSea Server CS300 - Android Clients
	3BH12095AB	LifeSize ClearSea Server CS300 - iOS Clients
	3BH12097AA	Upgrade from LifeSize ClearSea Server CS100 - 6 ports to LifeSize ClearSea Server CS100 - 16 ports
	3BH12097AB	Upgrade from LifeSize ClearSea Server CS100 - 16 ports to LifeSize ClearSea ServerCS150 - 26 ports
	3BH12097AC	Upgrade from LifeSize ClearSea Server CS150 - 26 ports to LifeSize ClearSea Server CS150 - 50 ports
	3BH12097AD	Upgrade from LifeSize ClearSea Server CS150 - 50 ports to LifeSize ClearSea Server CS150 - 100 ports
	3BH12098AA	Upgrade from LifeSize ClearSea Server CS300 - 26 ports to LifeSize ClearSea Server CS300 - 50 ports
	3BH12098AB	Upgrade from LifeSize ClearSea Server CS300 - 50 ports to LifeSize ClearSea Server CS300 - 100 ports
	3BH03000AA	LifeSize UVC Server - Hard Drive
	3BH11873AA	LifeSize MicPod Extension Cable
	3BH11875AA	LifeSize MicPod Splitter
	3BH11877AA	LifeSize Camera Cable - 7.5M / 25ft
	3BH11879AA	LifeSize Camera Cable - 15M / 50ft
	3BH11995AA	LifeSize Remote Control (Black) - English
	3BH12026AA	LifeSize Cart for Video System - For single Display

	3BH12027AA	LifeSize Cart for Video System - For dual Display
	3BH12028AA	LifeSize Wall Mounting kit for Video System - For single Display
	3BH12029AA	LifeSize Wall Mounting kit for Video System - For dual Display
Whiteboard solution		
	3BH12046AA	Interactive Whiteboard - SB685ix, UX60 projector, GoWire, Meeting Pro
	3BH12047AA	Audio System for Interactive Whiteboard (no power cord)
	3BH12049AA	Mobile Height-adjustable Floor Stand for Interactive Whiteboard
	3BH12050UK	Power Cord Set for Interactive Whiteboard, United Kingdom
	3BH12069AA	Interactive Whiteboard System SBX885
	3BH12070AA	Interactive display SBID8070i-SMP
	3BH12071AA	Interactive display Mobile Stand
	3BA09454JA	Software license Interactive Whiteboard
	3BH12051AA	Set of 4 replacement Pens and 1 replacement Eraser for Interactive Whiteboard SB685
	3BH12052AA	Replacement Lamp for UX60 Projector
	3BH12103AA	Set of 2 replacement Pens and 1 replacement Eraser for Interactive Whiteboard SB685 or Interactive Display 8070
Digital Signage products		
	3BA09483JA	Digital Signage Release R1.0 software license
	3BA09484JA	Digital Signage software license for 1 player
	3BA09485JA	Digital Signage server software license for 1 to 10 players
	3BA09486JA	Digital Signage server software license for 11 to 59 players
	3BA09487JA	Digital Signage server software license for 60 to 99 players
	3BA09488JA	Digital Signage server software license for 100 to 199 players
	3BA09489JA	Digital Signage server software license for 200 to 299 players
	3BA09490JA	Digital Signage server software license for 300 to 499 players
	3BA09491JA	Digital Signage server software license for 500 to 3999 players
	3BA09520JA	Digital Signage server software license for TV Tuner
8 Series IP Touch sets		

	3GV27062TB	Alcatel-Lucent IP Touch 4068 phone extended edition Urban Grey, Bluetooth® 1.2, 1/4 VGA colour display, 4 directions navigator, 10 soft keys, hands free, QWERTY alphabetic keyboard, Comfort handset, headset jack, PC connection, without power supply
	3GV27061TB	Alcatel-Lucent IP Touch 4038 phone extended edition Urban Grey, 6 lines graphical display, 4 directions navigator, 10 soft keys, hands free, QWERTY alphabetic keyboard, Comfort handset, headset jack, PC connection, without power supply
	3GV27060TB	Alcatel-Lucent IP Touch 4028 phone extended edition Urban Grey, 4 lines graphical display, 4 directions navigator, 6 soft keys, hands free, QWERTYalphabetic keyboard, Comfort handset, headset jack, PC connection, without power supply
	3GV27063TB	Alcatel-Lucent IP Touch 4018 phone extended edition Urban Grey, 1x20 characters display, 2 directions navigator, hands free, 6 programmable keys with LED, Comfort handset, without power supply
9 Series digital sets		
	3GV27011TB	Alcatel-Lucent 4019 Digital phone Urban Grey, 1x20 characters display, 2 directions navigator, group listening, 6 programmable keys with LED, standard handset
Options for 8&9 Series sets		
	3GV27013AB	Smart display additional module for Alcatel-Lucent 4028/4029/4038/4039/4068 phones, Urban Grey, with 14 keys, foot
Common option and accessories for 8&9 series and Reflexes™ sets		
	3GV28048AB	Corded headset for Alcatel-Lucent IP Touch, Digital and Reflexes™ phones - Binaural - Including jack plug 3,5mm and RJ11 plugs connectors - Plantronics - Supra Plus H261 voice tube
Power supply for sets		
	3MG27006RW	48V Power supply Rest of the world (x4) compatible with My IC Phone 8082 and IP Touch 8 Series
My IC phone sets		
	3MG27036AA	Alcatel-Lucent OmniTouch 8082 My IC Phone 7`` WVGA touch screen with sensitive feedback, sensitive keys, Bluetooth handset wideband audio, adjustable foot, 3.5mm headset jack 10/100/1000 PC connection 2 USB connectors, POE or power supply connector, Application openness, compatible with comfort handset, extended memory capacity
WLAN On site mobility equipment		

	3BN78402AA	Alcatel-Lucent OmniTouchTM 8128 WLAN Handset includes set, battery, belt clip, regulatory sheet	
	3BN78404AA	Standard battery for Alcatel-Lucent OmniTouchTM 8118 and 8128 WLAN Handset	
	3BN78403AA	Desktop charger Europe for Alcatel-Lucent OmniTouchTM 8118 and 8128 WLAN Handset, with CEE 7/16 mains plug	
Conferences modules			
	3GV28163AA	OT4135 IP Conference Phone Pack, OT4135 IP Conference Phone bundled with Accessories (Network Cable, Expansion Microphones and Transformer)	
Server & PC Platforms			
	3BA27675AA	19 inch TFT monitor for the PC servers associated to Alcatel-Lucent applications	
	3BA27742EN	Server rack Platform 3-2 equipped with OS Windows 2008 R2 server English	
	3BA27745EN	PC Pack 4 Windows Seven 32 bits, english language	
	3BA27770EN	Server rack Platform 3-4 equipped with OS Windows 2008 R2 server English	
	3BA57293EN	Keyboard for PC/Server English	
	3BA09276JA	Red Hat Enterprise Linux ES V5 sofware license	
	3BH11705AC	Red Hat Enterprise Linux V5 DVD-R	
Migration & Maintenance			
	3EH05013AC	Power supply board kit for 3rd generation rack 3 (220V)	
	3EH05022AA	48Volts DC power supply board for Rack3	
		TOTAL FOR THE ENTIRE PROJECT	**R**

NB: SUPPLIERS MAY ATTACH THE BREAKDOWN OF THEIR OWN PRICE SCHEDULE.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (IN BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

PART C3: SCOPE OF WORK

PROVISION OF VOICE AND DATA TECHNOLOGY/INFRASTRUCTURE SERVICES WITHIN THE CITY OF TSHWANE FOR A PERIOD OF ONE(1) YEAR

Technical and General Specification

1. Purpose

The City of Tshwane (CoT) is dependent on Information and Communication Technology (ICT) in almost every segment of its operations. However, business processes that depend on IT are only as reliable and sustainable as the underlying ICT infrastructure. In order to better align business requirements with ICT capabilities and deliver ICT capabilities at an appropriate cost, CoT management is shifting from an ICT technology focus to an ICT service model approach.

Tenderers are invited to submit a proposal to the City of Tshwane (CoT) to provide such hardware and support services to ensure reliable functioning and sufficient capacity exist for all the CoT communication infrastructure. The purpose of this document is to:

- Provide the prospective Vendor with sufficient information to understand and respond to the requirements.
- Ensure that comparable information is obtained from Vendors.
- Provide a structured framework for the subsequent quantitative and qualitative evaluation of proposed solutions.

Contractual period will be for one year with additional warranty period of one year.

Any vendor submitting a bid, must have the highest possible partnership with the OEM of the proposed equipment i.e Alcatal-Lucent – Premier Partner, Cisco – Gold Partner, HP - , IBM - etc.

2. Scope

To provide and maintain the CoT with the necessary network equipment needed to extend the current network, to maintain and improve the current network, to monitor, protect and secure the network, including the deployment of UPS infrastructure on the network and data centres, this is to protect the core infrastructure on the network as well as to safe-gaurd the data intergrity and critical communications infrastructure, against power spikes and outages. It is preferable that this infrastructure be provided on this tender as it will allow for the seamless deployment of the same warrantee applicable on the voice and data switches bought here.

3. Programs, Projects And Maintenance

The proposed network and telecoms (switching and peripheral equipment), including UPS equipment, must be hundred per cent (100%) compliant and compatible with the existing Alcatel based network. The tender should include the installation material wherever required. All essential items including cables (inclusive of power & stacking cables), connectors, cage nuts, etc. needed for the smooth operation of the equipment shall be assumed to have been included in the quoted price/items if these have not been quoted separately.

Should the proposed switching equipment eventually fail to deliver the seamless integration Council needs, the approved contract can either be cancelled with immediate effect, without any recourse to the service provider in lieu of possible financial damages or loss.

Or it will be expected of the service provider to carry the cost for any additional development that will have to be done to get to this point in time.

Given the aforementioned it is Council's prerogative to procure whatever is needed from the tender, without the vendors having the recourse to litigate against Council should certain items tendered for not be bought on the tender.

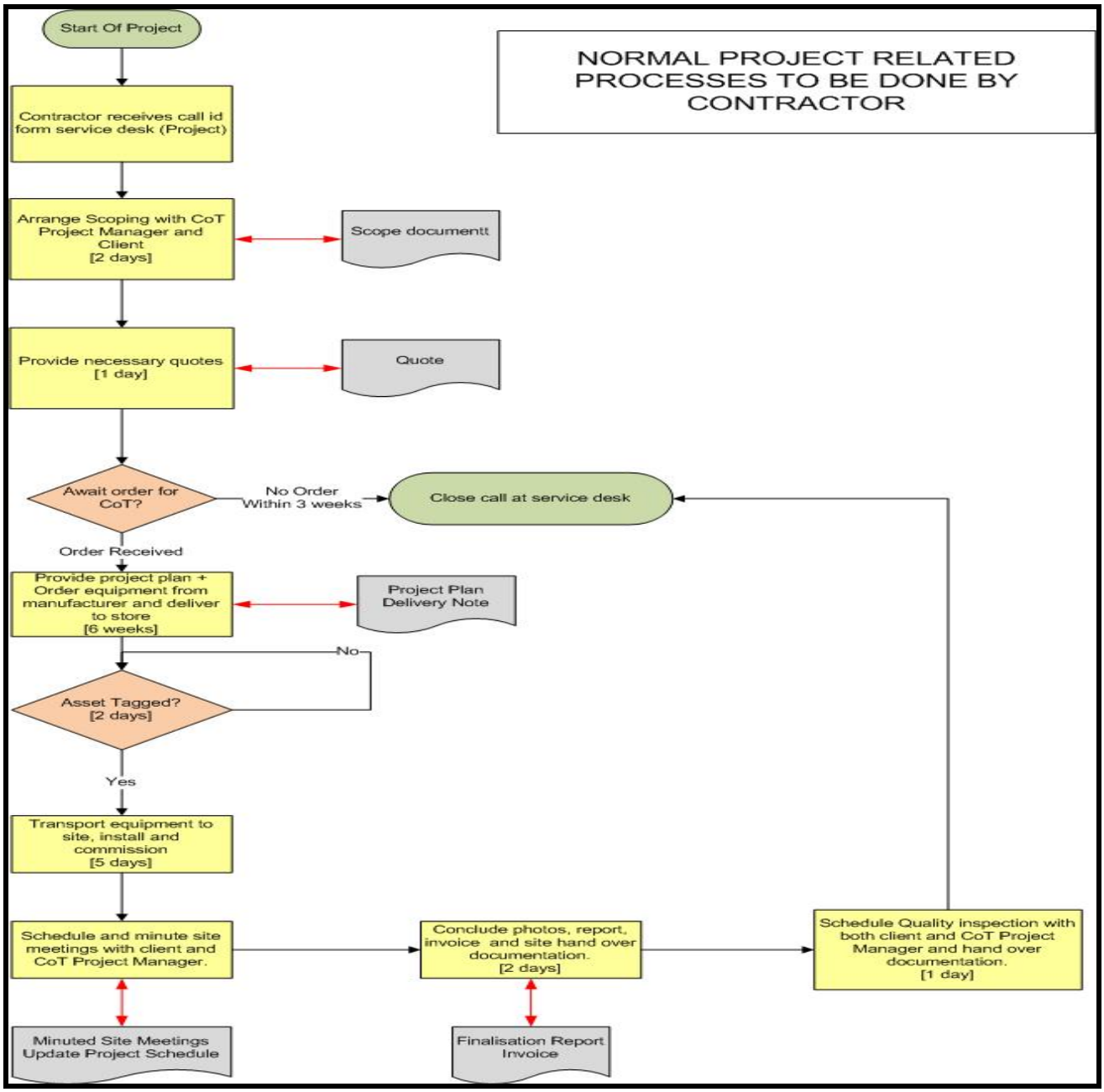
Council also has the prerogative to split the acquisition of the solution into 2 basic parts, namely the hardware alone, in other words "Box Dropping" for which said SP will then be responsible to provide Council with the required Voice & Data Switch to be delivered to the site it will be deployed at. With the second part of the service to be for the installation, commissioning and eventual warrantee and maintenance of.

3.1 Projects relating to Network Expansion

The tender involves the connection of several sites to the existing CoT network. The switches and associated transceivers like Gigabit Interface Converters, shall be delivered, installed, configured and commissioned at the various sites as per the price list (bill of quantities). Although cabling and associated cabinets are not part of this contract, the connecting fibre leads shall be supplied and installed by the successful contractor along with the switch or switches. The contractor shall also patch the users on the switch (patch cables will be either provided by Councils approved UTP service provider (Approved Tender), or if not possible by the approved service provider appointed on this tender) and also ensure that every user is connected to the network before signing off on the site.

Patching shall be done neatly and a quality inspection will be done by CoT personnel before payment will be made for a specific site. Detailed project deployment plans must be supplied as to manage the process from start to finish. As soon as the project is completed, a Final Project Close-Off Report must be submitted to Council by the approved Service Provider Project Manager, within 2 weeks from the go-live to officially hand the site over to relevant Director responsible for ICT infrastructure in Council to allow for the official hand-over to the maintenance teams.

The process is described in the flow chart below, mainly to give an indication of the process but also to list the required documents and to indicate the time frames associated with this. The process can be changed by CoT at any time during the contractual period to incorporate additional requirements or changes.
The below delivery and timeframes provided per phase must be regarded as a guestimate and can be changed and amended by way approved change control processes mutually agreed upon between Council's project manager and the approved service providers contract manager.


NORMAL PROJECT RELATED PROCESSES TO BE DONE BY CONTRACTOR
Start Of Project
Contractor receives call id form service desk (Project)
Arrange Scoping with CoT Project Manager and Client [2 days]
Scope documentt
Provide necessary quotes [1 day]
Quote
Await order for CoT?
No Order Within 3 weeks
Close call at service desk
Order Received
Provide project plan + Order equipment from manufacturer and deliver to store [6 weeks]
Project Plan Delivery Note
No
Asset Tagged? [2 days]
Yes
Transport equipment to site, install and commission [5 days]
Schedule and minute site meetings with client and CoT Project Manager.
Minuted Site Meetings Update Project Schedule
Conclude photos, report, invoice and site hand over documentation. [2 days]
Finalisation Report Invoice
Schedule Quality inspection with both client and CoT Project Manager and hand over documentation. [1 day]

3.2 Programs

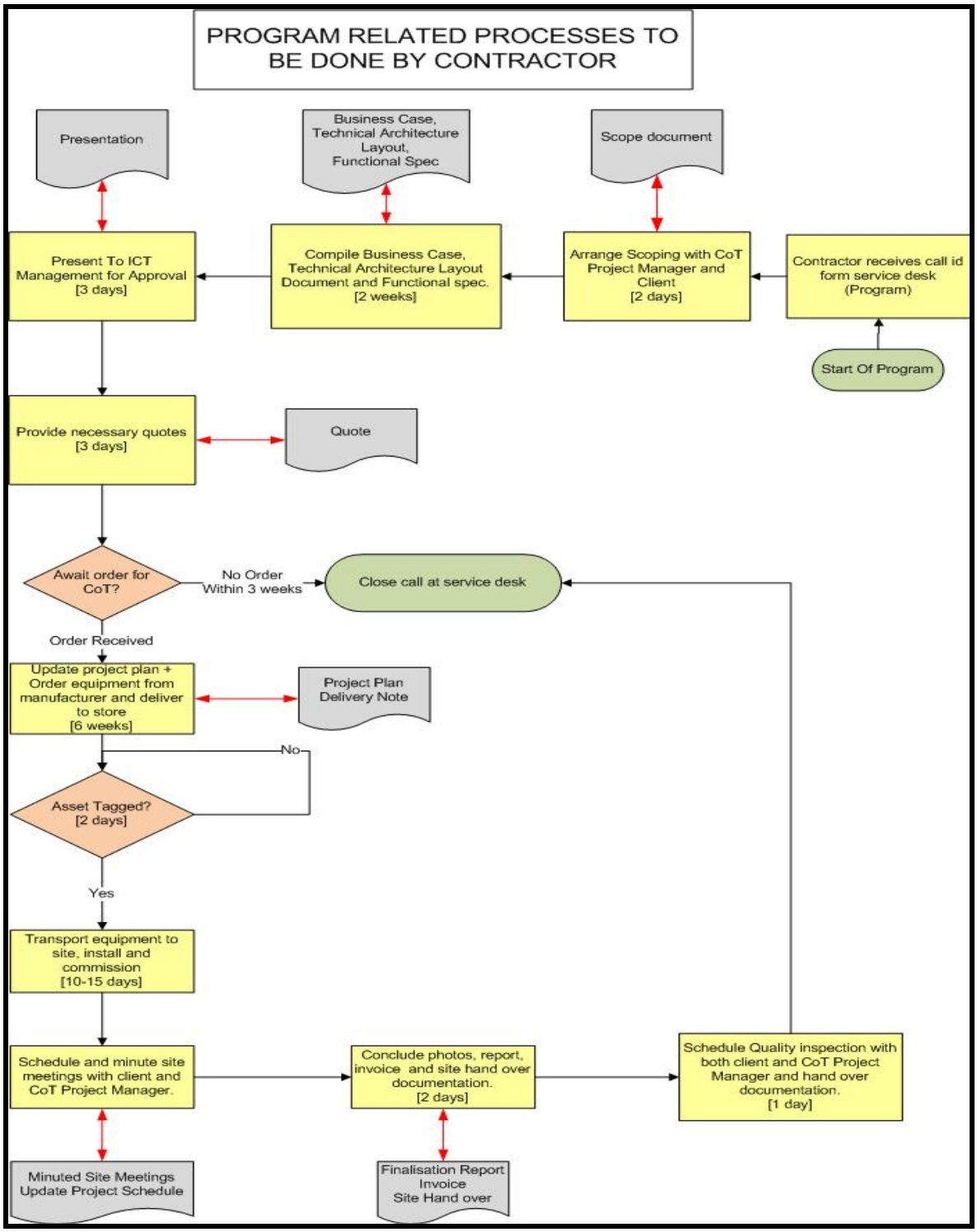
For the purpose of this document, Programs will be defined as special projects that might be required from time to time. CoT will define these special projects. Business cases (BC) are applicable where the BC are required by CoT for strategic decision making and to determine infrastructure technology deployment. Project proposals by the contractor applies once the CoT has determined the scope of a project to meet the specific requirement CoT might have at that stage, with limited scope based on a strategic decision.

The Programs will have similar steps than the projects, but in addition need the following documentation that must be completed by the contractor and must be submitted to ICT Management for approval:

- Business Case
    - Cover page
    - Table of contents
    - Authority Signatures
    - Executive Summary
    - Business Needs and Desired Outcomes
        - Strategic environment
        - Strategic Fit
        - Detailed description of business need
        - Scope
    - Analysis and Recommendations
        - Evaluation Criteria
        - Possible Options
        - Viable options
    - Viable Options
        - Strategic Alignment
        - Costs
        - Cost Benefit Analysis and return on investment
        - Implementation and capacity considerations
        - Impact
        - Risks
        - Policy considerations
        - Advantages and disadvantages
    - Recommendation
    - Managing the Investment
    - Project Management Strategy
    - Appendices (if applicable)
    - Glossary
- Technical Architecture Layout
    - Containing all technical detail of the project
    - Hardware details
        - Switch specifications
        - Servers, Storage, Backup and Archiving requirements
        - Necessary SQL design templates (where applicable)
        - Infrastructure requirements ie cabling, electrical, air-conditioning, etc
    - Layout diagrams/drawings of the various components
    - Detailed quotes
    - Risk Matrix
    - Project Plan

- Functional Specification (FS)for example the functional requirements of a Call Centre – client to sign off. Said FS refers to the solution functionality as determined by the Client, and excludes technical requirements.

The process is described in the flow chart below, mainly to give an indication of the process but also to list the required documents and to indicate the time frames associated with this. The process can be changed by CoT at any time during the contractual period to incorporate additional requirements or changes. The below delivery and timeframes provided per phase must be regarded as a guestimate and can be changed and amended by way of approved change control processes mutually agreed upon between Council's project manager and the approved service providers contract manager.


PROGRAM RELATED PROCESSES TO BE DONE BY CONTRACTOR
Presentation
Business Case, Technical Architecture Layout, Functional Spec
Scope document
Present To ICT Management for Approval [3 days]
Compile Business Case, Technical Architecture Layout Document and Functional spec. [2 weeks]
Arrange Scoping with CoT Project Manager and Client [2 days]
Contractor receives call id form service desk (Program)
Start Of Program
Provide necessary quotes [3 days]
Quote
Await order for CoT?
No Order Within 3 weeks
Close call at service desk
Order Received
Update project plan + Order equipment from manufacturer and deliver to store [6 weeks]
Project Plan Delivery Note
No
Asset Tagged? [2 days]
Yes
Transport equipment to site, install and commission [10-15 days]
Schedule and minute site meetings with client and CoT Project Manager.
Conclude photos, report, invoice and site hand over documentation. [2 days]
Schedule Quality inspection with both client and CoT Project Manager and hand over documentation. [1 day]
Minuted Site Meetings Update Project Schedule
Finalisation Report Invoice Site Hand over

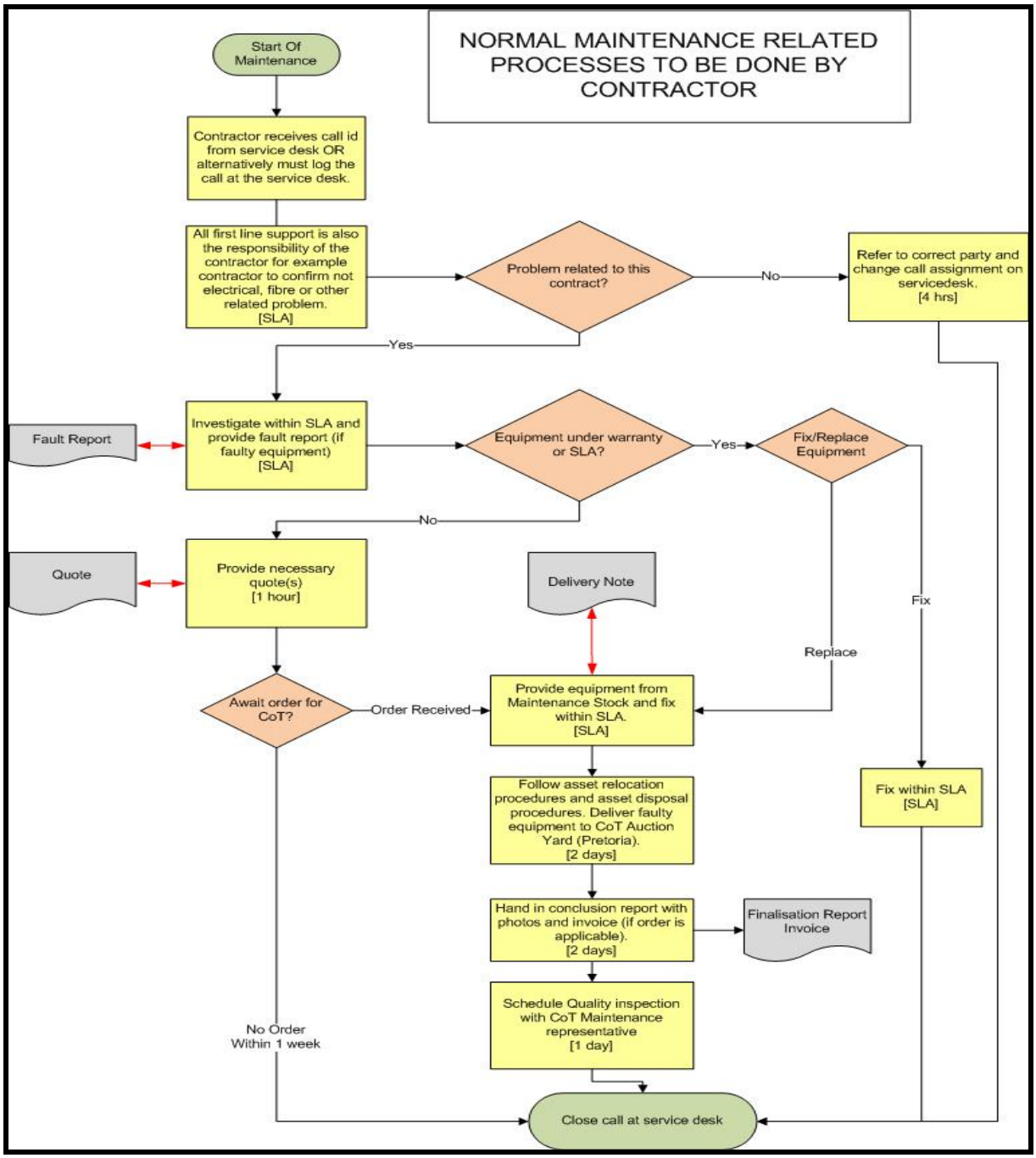
3.3 Maintenance

The successful Tenderer must have sufficient maintenance stock, of at least R10m to enable immediate replacement of strategic/critical switching equipment as currently deployed on Councils core sites (whether the equipment is covered by an SLA or not). Proof (Confirmation letter from Auditor) of this must be provided in your tender response. Failure to do so will result in cancellation of your tender submission. CoT reserves the right to physically audit/verify these claims.

Faulty equipment under SLA must be replaced immediately under said SLA without any additional cost to CoT. Said faulty equipment will then be repaired off-site by the Service Provider and returned to site within a period of 6 weeks. Should more time be needed due to equipment having to be ordered from the OEM this time frame can be re-negotiated. Planned down time must be done in accordance with/in collaboration with CoT's Change Control Policy's (Basic ITIL Principles).

Equipment that is not covered by guarantee/SLA will be ordered via the official Procurement procedures. However such equipment must also be replaced immediately with loan stock to ensure continuity of service. It will be expected from the Service Provider to bi-annually provide to Council a equipment replacement plan, wrt equipment in this tender scope. Proof of previous replacement plans provided to former clients (Similar Network size than the CoT) has to be submitted as part of the tender response.

Faulty equipment must be disposed by the official CoT asset disposal procedures and such equipment must be delivered to the Auction Yard in the CBD by the appointed tenderer. Delivery of new equipment to meet CoT's MFMA requirements wrt delivery and payment issues, including all relevant insurances. Said equipment must be delivered to site where installation is to be done, installed and commissioned. If this is not possible due to incomplete status of the delivery site/premises, the equipment must be delivered to storage facility nominated by the CoT. All cost related to delivery to the final site must be included in the Service Providers quote.


NORMAL MAINTENANCE RELATED PROCESSES TO BE DONE BY CONTRACTOR
Start Of Maintenance
Contractor receives call id from service desk OR alternatively must log the call at the service desk.
All first line support is also the responsibility of the contractor for example contractor to confirm not electrical, fibre or other related problem. [SLA]
Problem related to this contract?
No
Refer to correct party and change call assignment on servicedesk. [4 hrs]
Yes
Fault Report
Investigate within SLA and provide fault report (if faulty equipment) [SLA]
Equipment under warranty or SLA?
Yes
Fix/Replace Equipment
No
Quote
Provide necessary quote(s) [1 hour]
Delivery Note
Fix
Replace
Await order for CoT?
Order Received
Provide equipment from Maintenance Stock and fix within SLA. [SLA]
Follow asset relocation procedures and asset disposal procedures. Deliver faulty equipment to CoT Auction Yard (Pretoria). [2 days]
Fix within SLA [SLA]
Hand in conclusion report with photos and invoice (if order is applicable). [2 days]
Finalisation Report Invoice
Schedule Quality inspection with CoT Maintenance representative [1 day]
No Order Within 1 week
Close call at service desk

4. Overview Of Current CoT Voice and Data Backbone Infrastructure

The current deployed Voice and Data infrastructure is based on the Alcatel-Lucent range of products. Given the vast investment made and the substantial saving brought about by this network, Council will not replace this platform. Any solution must be able to fully integrate and support the same level of functionality and seamless integration of all functions and features. This will be the sole responsibility of the SP to ensure functionality.

4.1 Data Platforms

The CoT have developed a carrier grade, high availability, secure and easy to manage infrastructure to carry IP data, voice and video. All applications are thus supported across the existing 1 and 10 Gigabit Ethernet Backbone. The core network is deployed using Alcatel OmniSwitch range. Edge or user accesses are all based on Ethernet standards ranging in speeds depending on the need.

All networking equipment delivers Layer 2/3/4 switching functionality. The Ethernet core, distribution and access layer is deployed using Alcatel OmniSwitches. The submitter will need to augment the existing high availability IP infrastructure to deliver Value Added Services to CoT existing and future users.

The physical infrastructure is mainly based on fiber optic connectivity (multimode, single mode and long haul single mode) with copper cabling, Cat5e, Copper 10 and 6 (Cat = Category) and wireless links used as required.

The network enables extensive quality of service to support existing response-time critical applications and multimedia services like voice over IP with provision for video on demand and conferencing systems.Radio links exist ranging from 11 Mbps to 300 Mbps. Wi-Fi equipment is deployed at several sites including public Wi-Fi access.

Any solution provided by the service provider must adhere to a certified carrier grade solution as part of this submission. The solution offered must preferably be scalable to deliver network connectivity on the back-bone from 10Gbps to 100Gbps on a single ASIC. Please provide detail as to how this is to realised.

4.2 Voice Platforms

CoT currently utilizes a range of products from Alcatel to fulfil in its voice needs which is seamlessly integrated as a converged voice and data network. It has a wide range of Alcatel voice products to full-fill these needs including the Alcatel Omni PCX Enterprise, remote shelves, management software and a wide range of phones ranging through products like, digital phones and IP phones. The same qualtiy/standard of equipment must be provided. Any solutions submitted as part of this tender must expand on this model. Deviation in this regard will not be accepted. The same features and functionality must be maintained by any solution proposed by the vendors.

4.3 Management Platform

The CoT has implemented a single Management platform to manage and maintain all the core voice and data equipment, using Alcatel's OmniVista management applications and SAM (Service Aware Manager)

The centralized management platform covers all the aspects of the management from network hardware configuration, security, Virtual Local Area Networks (VLANs), Quality of Service (QoS), Intrusion Detection System (IDS) integration, and telephony services. These configuration settings are propagated across the entire network in a single operation.

Additionally the Alcatel OmniVista Quarantine Manager Application interfaces with the installed Fortigate IDS devices to automatically isolate any user detected as propagating viruses, using the dynamic, mobile VLAN capabilities of the Alcatel OmniSwitches.

It will be required of the successful tenderer to provide monthly reports, using their own network management tools with the same functionality as mentioned earlier in this section. In addition the sucessful tenederer will be required to use industry approved Sniffers (1 GB and 10 GB ETHERNET PORTS – Copper and Fiber interfaces). These management tools must be updated regularly to support new features and must also be available to display on overhead monitors and to CoT network personnel.

All reporting is relevant to utilisation, performance, virus activity, service attacks, traffic analysis, etc. All reporting must be made available at set times during the month, and must also be available for any ad hoc requests. All information on the systems is confidential and must at all times be routed through the correct channels and protocols. The successful vendor will be responsible for any licensing fees applicable to sniffers or any other diagnostic software needed to properly support and maintain the environment. The voice/data network must be properly documented (drawings) containing all relevant information such as IP addressing, physical interfaces etc.

4.4 Additional Information

The appointed supplier will have to implement and maintain new equipment and integrate it seamlessly with the current Alcatel based infrastructure, working with the existing support Service Provider who has a maintenance contract for some of the existing equipment valid until 2016.

4.5 Network General Information

Key facts:

Number of Users	6 500
Total Alcatel Switches	650
Nr of ports	±18 000
Nr of buildings connected	±330 buildings
LAN ranges:	10/100Mb, 1000 Mb
LAN types:	Multimode fiber, UTP Cat 5, Copper 10, Cat 6
WAN ranges:	64 kbps, 128 kbps, 512 kbps, 2 Mb, 4 Mb, 11/300Mb, 1000 Mb, 10 000 Mb, 100Gbps
WAN types:	Diginet, ISDN, Wireless Radio, Gigabit Ethernet, 10 Gig Ethernet,
Wi-Fi:	Deployed mostly at conference rooms and libraries.
Call Centres:	Genesys/Voice recording

Network diagrams will only be given to the appointed service provider due to their confidential nature.

5. Technical Support Staff And Skills

5.1 General

5.1.1 Skill Requirements

A complete organogram of the resource base to be deployed at the CoT must be provided, with dedicated Operations Manager and Project Manager being mandatory. With these two positions, as mentioned above, not being carried by the same resource/person. Only certified professionals, on the highest possible certification from the particular OEM, (example – ACSE for Alcatel Equipment) are allowed to configure data and voice equipment.

Proof of certifications must be submitted along with the bid. All identified/nominated resources as listed below, must be deployed on Councils premises and be available to the Council Contract Manager, being the relevant Deputy Directors responsible for the deployment and management of this infrastructure. If such proof cannot be supplied, the bid shall be disqualified. The following summarized technical profile must be attached along with certification:

Name And Surname	
Date of Appointment	
Certifications	
Qualifications	
Experience	
Duration Working For Company	
Designation	
Nature Of Work	

5.1.2 Working Hours and Availability

Working hours for Tshwane is from 7:30 to 16:00. All professionals and the Service Provider Management team/Technical resources must be onsite during office hours, subject to managerial needs experienced from the Service Providers Head Office. The exception here would be annual leave and training, at which time it will be expected that the SP make suitable back-up arrangements that will ensure continuity of services. These standby resources must be available on a 1 hour basis.

In this regard also refer to the SLA. Suitable office space will be provided by Tshwane. As some projects/programs can influence the availability of major core switches, such projects/programs can only be done after hours. Prices must therefore include for the overtime requirements, not only for the implementation of the project but also should maintenance issues arise.

5.1.3 Standby/Overtime

To ensure service coordination, a roster will be set up for three (3) months in advance for resource planning. At least one team must be on standby after hours, on public holidays and over weekends. Information must be available at all times with the name and contact detail of the persons on standby.

After hour, weekend and public holiday support will be determined by need to resolve issues and problems and to execute planned activities. This support needs to catered for and, as with standby, provided for by the contractor as per contracting company's HR policy.

In an event of a failure or maintenance issue, the standby person will be notified and must respond in terms of the SLA (Service Level Agreement) contained within this document.

5.1.4 Reporting Levels And Communication Protocol

The following applies:

- All Technical Resources and Project Managers report directly to the Service Providers Operations Manager (OM), being primarily responsible for the service delivery by the SP to Council here. The OM to report directly to the CoT's relevant Deputy Directors **(Networks & Telecommunication Services)** responsible for the Networks and/or their appointed representative.

- Project managers\installation and maintenance teams\all other onsite resources of the contractor to interact with project managers of the CoT.
- All reports on SLA issues to be compiled by the above OM who will report directly to **the above Deputy Director's** or approved representative.
- All Departmental requests for equipment and services to be referred to the applicable CoT Deputy Directors (or approved representative), as body responsible for all related projects.
- All personnel to adhere to the communication protocol. The communication protocol is via the appointed CoT Director responsible for the Networks. All requests for hardware or services will be via this office. Under no circumstances shall the OM give feedback to any director but the CoT Director responsible for Networks (or appointed representative). Contractors shall not set up / attend meetings with other directors, or represent ICT in any form or meeting unless express permission was granted, and shall adhere to CoT procedures at all times.

5.1.5 ITIL And Change Control

All activities need to be planned and executed as per ITIL practices. The existing CoT forms can be utilized, or modified if the need dictates.

No work will be carried out on the network unless a Change Control was submitted by the successful contractor to ICT. Request for changes must be accompanied by an impact study and the necessary change control as to avoid unnecessary Maintenance calls. Due notification/communication to users will in some cases be necessary.

In a project setup, communications must be via the project managers. If however, the project managers and team cannot agree, both parties can escalate the matter to ICT Management for final decision.

5.1.6 Meetings And Presentations

The contractor will be required to schedule and minute a bi-weekly (forth nightly) meeting

with the CoT. The following must be standing discussion points:

- Reporting on complaints i.e. complaints received and scheduling information etc
- Reporting on status of projects

The contractor may also be required to attend AdHoc meetings as and when required (for example project meeting with the client CoT). From time-to-time, the contractor will be required to either present or prepare a presentation for Top Management.

5.1.7 Reporting And Documentation

The following documentation is a requirement:

- Monthly network reports reporting on programs, projects and maintenance.
- Weekly maintenance feedback reports
    - Inclusive of all historical complaints
    - Statistics on calls completed within SLA, out of SLA, not completed (and reasons for not completing)
- Need to supply Business Case(s) on request – normally two weeks will be given to compile Business Cases.
- Weekly progress schedules.
- Update all network related architecture for example network drawings
- Technical Architectural Specifications
- Functional Specifications
- Presentations
- Quotes
- Project Plan (+associated project manager) for every project
- Minutes of meetings

- All related documentation that might be listed in this Tender
- Sniff report to be handed in after every sniff request (Scheduled Sniff tests to be scheduled per quarter.)
- Any ad hoc documentation as required from time-to-time.

The CoT does have a service desk, but it remains the responsibility of the contractor to collect the necessary data with regards to maintenance calls and projects. Also note that all calls and projects must be logged at the CoT service desk.

5.2 Required Skill Set

5.2.1 Certified Switch Experts

The successfull vendor will be required to have and deploy permanently on site, for the duration of the contract and guarantee period, at least two Alcatel Certified ACSE's for Data (Alcatel Certified Switch Expert) as to ensure seamless integration into the Alcatel environment. Should the bidder offer non-Alcatel products, then an additional two product specific Certified Switch Experts will be required, deployed permanently on site, for the duration of the contract and guarantee period. The daily management and control wrt these resources will be with the relevant DD and SP Operations Manager, taking into consideration and adhering to the organogram as provided by the SP. As per paragraph 5.1.2.

5.2.2 Certified Voice Experts

The successfull vendor will be required to have and deploy permanently on site, for the duration of the contract and guarantee period, at least two Alcatel Certified ACSE's for Voice (Alcatel Certified Switch Expert) as to ensure seamless integration into the Alcatel environment. Should the bidder offer non-Alcatel products, then an additional two product specific Certified Switch Experts will be required, deployed permanently on site, for the duration of the contract and guarantee period. The daily management and control wrt these resources will be with the relevant DD and SP Operations Manager, taking into consideration and andhering to the organogram as provided by the SP. As per paragraph 5.1.2.

5.2.3 Operations Manager

The successfull vendor will be required to have and deploy permanently on site, for the duration of the contract and guarantee period, an Operations Manager. The duties of the Operations Manager are listed below:

- Day to day management of all contracted staff from Service Provider (Technical, Administrative and Projects).
- Responsible for monthly reports that provide SLA statistics, projects and other related business information and statistics applicable to all areas of the Service Provider's services to Tshwane.
- Monthly minuted meetings with Deputy Directors and Directors to discuss Operational Reports.
- Single point of contact to discuss Tshwane requirements as well as escalations (Operations and Projects)
- Service Desk Calls (Maintenance): Handling of daily complaints. Complaints are issued via the Service Desk. The Operations Manager must ensure that the call is logged with the correct category. Completion reaction times will be used as a metric to determine performance. This is a daily activity.
- Procurement tracking and reporting on a weekly and monthly basis. This includes correct invoicing.

5.2.4 Project Manager

The successfull vendor will be required to have and deploy permanently on site, for the duration of the contract and guarantee period, a project manager. The duties of the project manager are listed below:

- Monthly minuted site (project) meetings with attendance register with all involved parties (including voice, data, UTP, fibre, the customer etc.). Ad hoc project related meetings to be scheduled per project/need relevant to the project
- Fortnightly summarized project feedback to the relevant Operations Manager (Service Provider) and Deputy Directors on progress and important dates/events as well as possible delays.
- Attend site scopings when project identified.
- Allocation of resources for projects
- Quality control inspections of sites during and after completion
- Ensuring completeness of documentation i.e. test results, drawings etc. (Project Finalisation Report)
- Signing-off of the site
- To manage projects according to sound project management principles

It consists of seven stages:

Site scoping stage or site visit to determine extent of project. This consists of all involved parties including fibre, UTP, data-voice contractors, the client etc.

- Held at location where equipment/linkage is required.
- Investigate the Link-up Premises as well for example to check availability of spare fibre, Gig ports/blades, ATM ports/blades etc.

1. Quotation Stage
    - Contractor to arrange for quotes.
2. Planning Stage
    - Complete project templates and all planning required for the project including possible change control procedures.
3. Ordering
    - Client/CoT will obtain the necessary order
    - Contractor to ordering equipment after official order has been issued by CoT.
4. Installation
    - Establish and Mobilize teams.
    - Arrange delivery of equipment on site.
    - Site inspections
    - Weekly minuted site meetings on site with all involved parties. Minutes should include responsibilities of role players (**Involved Parties**) and due dates on tasks. Sound project management principles must be used.
    - Solving and communicating possible installation problems
    - Summarized reporting to Supervisor and feedback as required.
    - Conformance to specifications unless reasons exist for non-conformance.
    - Inform parties of completion of sub-stages i.e. UTP Cabling completed, Fibre installation completed, Fibre termination and splicing completed, Voice and Data completed.
5. Certification
    - Krone Certification for UTP/ fibre installation
    - Neatness of data and voice equipment
    - Site as per original condition
    - Quality Control
6. Invoicing and completion
    - Ensure that invoices are requested and handed in with Payment voucher.

- Ensure that invoice data is received by Supervisor and thereafter handed to the Tshwane Financial Representative.
- Tag keys and arrange for storage in key box.
- Invoices must be handed in after completion (sign-off) within 3 working days.

5.2.5 Network Sniffing Expert

Please note: If CoT deems it fit to do so, the services of an external sniffer expert will be obtained where necessary or to double check results. However, the contractor will be required to make the following services available for a reputable sniffing expert.

5.2.5.1 Quarterly Sniffs

Quarterly sniffs will be scheduled to ensure that the network is stable. The Sniffing Expert shall sniff the core network for a period of five working days and then submit a detailed report with the finds and corrective measures. Prices quoted will be per quarterly sniff of five days including for the time needed to examine the sniff and to prepare the report.

Prices to include all software and hardware required (it remains the property of the Networking Sniffing Expert or the bidder). Change control procedures must be followed before the sniff is undertaken.The successful tenderer must ensure that corrective actions are taken as pointed out via the sniff report.

5.2.5.2 Sniff On Requirement

Sniffs on requirements will be scheduled when users complain about slow access on the network. The Sniffing Expert shall sniff a particular user(s) and/or system and the building for a period of three working days and then submit a detailed report with the finds and corrective measures. Prices quoted will be per sniff of three days including for the time needed to examine the sniff and to prepare the report.

Prices to include all software and hardware required (it remains the property of the Networking Sniffing Expert or the bidder). Change control procedures must be followed before the sniff is undertaken.The successful tenderer must ensure that corrective actions are taken as pointed out via the sniff report.

5.2.6 Engineer Professional Services

As the core network is Alcatel based, an Engineer from Alcatel-Lucent Professional Services will be required for a minimum period of one week per annum for the duration of the contract to health check and audit of the complete environment. A report with findings and recommendations must be provided to CoT within 3 weeks from departure of the engineer.

The maintenance incumbent will be required to implement any CoT approved recommendations. The cost for this engineer must be included in the maintenance fees. [In the case where non-Alcatel equipment is offered, an additional Proffesional Services Engineer (skilled in that specific product), must be included in the health check and audit.]

5.2.7 Additional Resources

Admin Clerks (3)
Jnr Technicians Voice and Data (2)
Genesys experts and technicians (2)
Wi-Fi technicians (2)
Network Monitoring and report administrative personnel (2)
Draughtsman skilled in GIS and Visio (1)
Security and Firewall expert (1)
Quality Controller (1)

(The above on-site resources are suggested by CoT, to have available to ensure quality support to be provided to the technical personnel)

5.3 Additional Requirements

5.3.1 First Line And Expert Support

Not only will the contractor be responsible for expert and all network related support, but for first line support as well. This imply that it is the contractor's responsibility to rule out any electrical, fibre or other related issues that causes the network to be down. The issue must be escalated to ensure faster response times in accordance with SLA1 being the preferred SLA level for the vast network that needs to be supported. The contractor must therefore also have the necessary test equipment to determine whether the network is down due to a fibre related problem.

5.3.2 Network Drawings and Project Templates

Network drawings must be updated regularly and must also show the fibre connection and type of fibre between the switches. After every project or change, the network drawing must be updated to reflect the necessary updates/changes.

5.3.3 Transport Service

New equipment must be delivered to the ICT store for asset tagging. The contractor must therefore provide a transport service inclusive of the necessary insurance, to transport the equipment to the ICT store and then to site after it was asset tagged.

The same transport service must be utilized to deliver faulty, end-of-life, old and redundant equipment to the Auction Yard, inclusive of the necessary insurance. Official disposal of asset procedures must be adhered to.

5.3.4 Radio Support

Radios are mostly located on water towers, reservoirs and other high sites. Support here must be certified for working on heights and any other OHSA requirements.

5.3.5 Support Teams

5.3.5.1 Project Teams

Project teams will only be assigned to projects and will include a certified Data and Voice expert as well as a project manager and operations manager. They will be responsible for all projects and programmes.

5.3.5.2 Maintenance Teams

Maintenance teams will only be assigned to maintenance and will include a certified Data and Voice expert. They will be responsible for the daily maintenance activities. Maintenance teams will be responsible for the support on the whole network therefore inclusive of:

- Newly deployed equipment
- Older Equipment inclusive of Alcatel, Cisco etc

5.3.6 Workload

Should CoT determine that the work load is strenuous, it will inform the contractor to deploy additional teams with immediate effect. This cost must be included in the labour charges quoted in the schedules.

5.3.7 Test Equipment

It is the responsibility of the contractor to issue test equipment to the required resources. The following equipment is mandatory and must be on site 24/7:

- VOIP testers
- Network analysis tools [such as Fluke Optiview or similar]
- Network assistant tools [such as Fluke Etherscope or similar]
- OTDR
- Cable testers to test UTP cabling
- Wireless fault tracing tools

It is the successful tender's responsibility to provide all tools and test equipment and to ensure that the equipment is maintained and calibrated according to manufacturer's standards. The contractor shall employ or contract suitably qualified and trained personnel to provide the Services to Tshwane in terms of this agreement. The personnel must be certified and it will be expected by from the SP to adhere to Councils mandate to provide training and skills transfer to identified members from the community as identified by CoT Top Management and Political Role Players.

Costing related to test equipment must be included in the support costs. After conclusion of the contract, the test equipment will remain the property of the contractor.

5.3.8 Leave Arrangements Etc

The contractor must provide a list with additional Certified Professionals to act as replacements for example for leave arrangements, courses etc. As previously discussed in this tender.

6. Equipment And Other Requirements

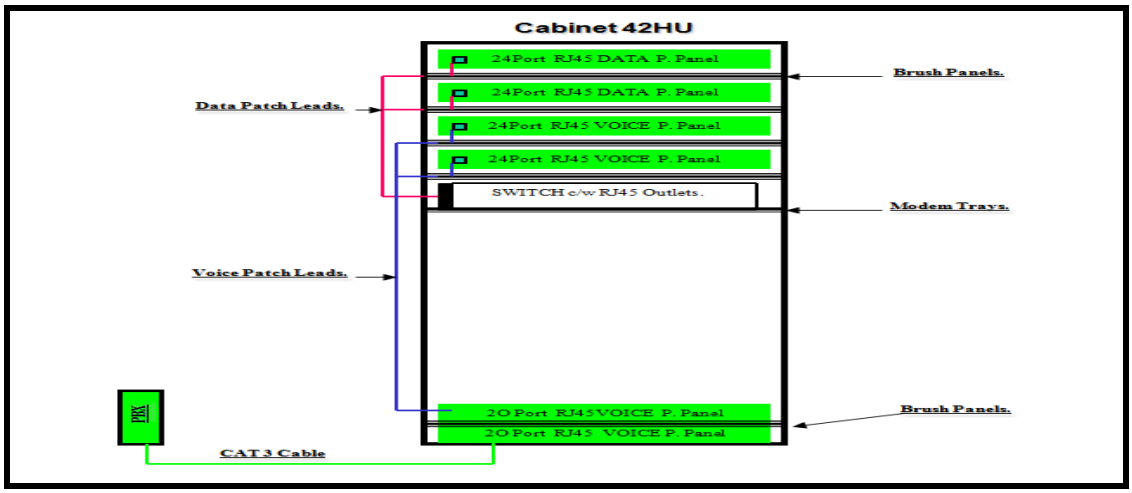
6.1 Cabling

Cabling work will be limited to the following:

- Supply, deliver and install fibre patch leads required to connect the switch with the existing backbone fibre.
- Supply, deliver and install stacking cables and or fibre patch leads required to stack or connect switches or other network equipment.
- Patch existing users – patch cables will be supplied by others.
- Supply, deliver and install electrical power cords as per South African power standards and related to equipment bought on this tender.

6.2 Cabinets

Cabinets and electrical outlets will be supplied by other approved service providers. A standard layout drawing for a 42U 600x800mm cabinet is shown below but position of the switch may vary and therefore final position must be confirmed by the relevant CoT Project Manager. The reference to Cat 3 in the schematic below must be upgraded to Cat5e/6.



6.3 Equipment Requirements

The successful contractor shall be responsible for setting up a working solution and therefore equipment must be 100% compatible and integratable with existing equipment. It will be the responsibility of the supplier to make the whole system operational. This includes configurations of all existing and new equipment and installation of any necessary software as may be required, and to install the equipment on site at the appointed tenderer's cost.

All proposed networking equipment (routers, L3 switch, etc) must support SNMP protocol (version 2 & 3). Any other Hardware/software required for the proper functioning of the system must be quoted for.

6.3.1 Data Equipment

6.3.1.1 Switches

Switches shall be suitable to mount securely along the width of the 19" cabinet. The switches must be fastened in accordance with manufacture specifications and all screws, bolts and other fastening accessories must be supplied and fastened by the successful contractor.

Switches shall have a minimum of (8 and 12) 24 ports. Ports shall be 100/1000 Mbps autosensing ports with the ability to force the port speed if required. Core switches shall be linked to Access Level Switches via 1000Mbps fibre optic ports. All switches shall have a minimum of two fibre uplink ports supporting different Gigabit Interface Converters. Backbone cabling will be supplied by others (with the exception of the fibre patch leads).

Through the use of Virtual LAN technology, it will be possible to virtually isolate the networks of individual CoT Departments/Divisions and restrict/control access to these networks. There is, thus, a need to have strict security measures to segregate these different users although they will be on the same communication backbone. Each Department/Division should be able to function as a Virtual Local Area Network (VLAN). Suppliers should configure VLAN over the Layer 3 switches to ensure security of the various LANs.

To make effective use of bandwidth switches must support features like Quality of Service (QoS)/Traffic Shaping, Policy Based Routing or any other suitable traffic engineering mechanism should also be configured.

All switches provided as part of this tender must adhere to the below technical specifications as it will ensure the seamless integration aspect to work as flawlessly as is necessary. Failure to comply with these specifications will result in disqualification of the SP's submission to Council.

6.3.1.1.1 Core Switch

- Large Gigabit and 10 and 40 Gigabit Ethernet port density and performance; offering up to 768 Gigabit Ethernet ports and up to 96 10-Gigabit Ethernet ports on the same chassis-based system.
- Smart Continuous Switching: Hot Swap, Management Module Fail-over, Power Monitoring, and Redundancy.
- No single point of failure and a sub-second fail-over in its redundant configuration.
- Redundant Management and Redundant Switch Fabric.
- Hot swappable components and hot insertable support: switch modules, SFPs/XFPs.
- Redundant Power Supplies (Redundant 1:1 power) and Redundant 1:1 PoE power provided by the PoE P/S.
- Spanning Tree robustness (Single or Multiple STP options): IEEE 802.1D (STP) (802.1D spanning tree for loop free topology and link redundancy) and IEEE 802.1w-Rapid Reconfiguration of Spanning Tree
- Ring Rapid Spanning Tree optimized for ring topology to provide less than 100ms convergence time.
- IEEE 802.1s multiple spanning tree and per-VLAN spanning tree (1x1).
- Fast forwarding mode on user ports to bypass 30-second delay for spanning tree.
- Preventing unauthorized spanning-tree enabled attached bridges from operating.
- BPDU blocking – automatically shuts down switch ports being used as user ports if a spanning tree BPDU packet is seen. Preventing unauthorized spanning-tree enabled attached bridges from operating.
- Priority queues: eight hardware-based queues per port.
- VRRP (Virtual Router Redundancy Protocol), and OSPF ECMP (Equal Cost Multipath Protocol).
- Dynamic link aggregation IEEE 802.3ad (that supports automatic configuration of link aggregates with other switches) with resilient uplink capabilities.
- MC-LAG
- Static link aggregation (that supports automatic configuration of link aggregates with other switches).
- IEEE 802.1s: MISTP (802.1s) is an IEEE standard which allows several VLANs to be mapped to a reduced number of spanning-tree instances. This is possible since most networks do not need more than a few logical topologies. Each instance handles multiple VLANs that have the same Layer-2 topology.
- Software Resiliency: The proposed product must provide fully redundant and resilient system components to insure continuous, non-stop operation. This includes redundant subsystems, hot swappable modules, load-sharing components, ”hitless software loading”, downloadable bootstrap, and image rollback which allows the system to automatically re-load previous configurations and software versions.
- Software image rollback and configuration recovery.
- Image and configuration synchronization for Management Modules.
- Hitless loading of optional software (routing/security), without re-booting.
- Broadcast storm control.
- Downloadable bootstrap.
- Chassis thermal protection/shutdown.
- Hardware monitoring, temperature monitoring, and power monitoring and management.
- Short “cold” and “warm” boot times.
- Built-in security and device hardening.
- Network and Link Resiliency: Network and link resiliency are important parts of network availability, and the proposed product must support advanced routing, load sharing, and mechanisms for fast reconfiguration of links between switches, servers, and other network devices:

    - VRRP (Virtual Router Redundancy Protocol), and OSPF Equal Cost Multipath Protocol
- Topological Network Redundancy: In order to provide the highest levels of availability throughout an enterprise, it is important to build redundancy and resiliency into the topology at the network level to insure that links have backups and traffic is always flowing:
    - Physical redundancy
    - Layer-2 and layer-3 redundancies
- Switch must have modular slots to support following modules -1000Base-T, 1000Base-SX and 1000Base-LX, 10Gig and 40 Gig
- Switch must support standards - IEEE 802.3: 10BASE-T (Ethernet), IEEE 802.3u: 100BASE-TX (Fast Ethernet), IEEE 802. 3z/ab: 1000Base-X (Gigabit Ethernet), IEEE 802.3x (full-duplex flow control)
- Switch must support following features: IEEE 802.1p (Priority Queuing), IEEE 802.1d (Spanning Tree Protocol), IEEE 802.1Q (VLAN), Link Aggregation (IEEE 802.3ad Trunking), IGMP (RFC 1112), Port Mirroring, Jumbo Frame Support and MAC/IP address filtering.
- Switch must have the following SNMP features - SNMP (RFC 1157), Remote Monitoring MIB (RFC 2819), Bridge MIB (RFC 1493), 802.1Q Bridge MIB (RFC 2674).
- Switch must have following Management features - Telnet, RS232 Console Port, Web-Based Management Interface, SNMP, Four RMON groups (1: statistics, 2: history, 3: history, 9: events)
- Switch must be able to filter out data packets based on certain MAC or IP address. This will block these network packets from accessing the network.
- Switch must support ICMP router discovery, Proxy ARP, Routing Information Protocol (RIP v1 and RIP v2), Open Shortest Path First (OSPFv2) for routing path management in a network.
- Switch must support Port-based and Tagged VLAN, which are compliant to IEEE 802.1Q standard and must be able to link these VLANs with wire-speed routing.
- Switch must support min 256 IP subnets / L2 tagged VLANs to segment the IP or MAC-based networks to reduce the network broadcast and improve the performance of the network.
- Must support server load balancing
- Must be a fully distributed architecture with modular software design for scalability
- Must offer Carrier Class Availability (99.999%)
- Must offer high levels of Security capabilities (DOS, A-VLAN's, SSL, Port Binding rules)
- Examples based on Alcatel Series:
    - Omniswitch 10K for server room environments
    - Omniswitch 9000E

Mandatory Technical Requirements for a Highly Secure System

- Partitioned Management – PM: Protected multiple user access control (i.e. the switch must provide a full suite of commands that allow the user to create and modify User IDs and Passwords (multiple administrative profiles) for access to switch management). The PM feature can utilize an on-board database, or RADIUS, LDAP authentication servers (user profiles are stored within these servers).
- Authenticated Switch Access (ASA): the proposed product must support a user access control or device access control with Secure Access Logging (AAA service) which can utilize an on-board database, RADIUS, LDAP, or ACE authentication servers.
- Automatic Log-out based on a pre-configured timer .
- Port Mapping (Private VLANs).
- Denial of Service Attack Defense (DOS protection).
- TAD traffic anomaly detection

- IEEE 802.1x industry standard port based authentication challenges users with a password before allowing network access (The proposed product must support IEEE 802.1x used in conjunction with emerging security technologies to provide a method to verify an end user and their device status and either allow admission or quarantine the device to a safe environment where the deficiencies can be remedied).
- IEEE 802.1x multi-client, multi-VLAN support for per-client authentication and VLAN assignment.
- IEEE 802.1x with group mobility.
- IEEE 802.1x with MAC based authentication, group mobility or “guest” VLAN support.
- MAC-based authentication for non-802.1x host.
- Dynamic User Network Profile
- LLDP (LLDP-MED)
- Access Guardian support.
- Port Binding.
- Authenticated VLAN that challenges users with username and password and will support dynamic VLAN access based on user.
- Support for host integrity check and remediation VLAN.
- Security through the implementation of a Quarantine Manager and quarantine VLAN, with Security automation
    - Quarantine VLANs
    - Isolation of intruders through a Quarantine Manager
- PKI authentication for SSH access.
- Learned Port Security (LPS) or MAC address lockdown that will allow only known devices to have network access preventing unauthorized network device access.
- The proposed product must support User authentication.
- Centrally authentication through a RADIUS, TACACS+, LDAP or ACE server.
- The proposed product must support RADIUS and LDAP admin authentication that will prevent unauthorized switch management.
- TACACS+ client allows for authentication-authorization and accounting with a remote TACACS+ server.
- Secure Shell (SSH), Secure Socket Layer (SSL) for HTTPS and SNMPv3 for encrypted remote management communication.
- Access Control Lists (ACLs) to filter out unwanted traffic including denial of service attacks; Access control lists (ACLs) must be per port, MAC SA/DA, IP SA/DA, TCP/ UDP port; Flow based filtering in hardware (L1-L4).
- Support for Access Control List Manager (ACLMAN).
- Support for Microsoft Network Access Policy (NAP) protocol.
- Switch protocol security:
    - MD5 for RIPv2, OSPFv2 and SNMPv3
    - SSHv2 for secure CLI session with PKI support
    - SSLv3 for secure HTTP session
- DHCP Snooping, DHCP IP Spoof protection.
- The proposed product must restricts user ports from sending control traffic (BPDU, RIP, OSPF, BGP).
- The proposed product must prevent IP source address spoofing.

Mandatory Technical Requirements for a Highly Intelligent system

- Virtual local area networks (VLANs)
    - Up to 4,094 VLANs, and up to 4,094 VLAN tags value support.
    - Per port, 802.1Q and policy based VLAN including authentication VLAN (A-VLAN).
- The proposed product must support wire-speed and feature rich Quality of Service (QoS).

- Industry classification standards including 802.1Q/p, TOS, and DiffServ, which will be enhance with complementary features such as extensive QoS mappings and re-tagging of prioritization:
    - IEEE 802.1p, ToS, DSCP marking.
    - QoS mapping: 802.1p to 802.1p and ToS and DSCP, ToS to ToS and 802.1p and DSCP, DSCP to DSCP and 802.1p and ToS
    - Classification per port, 802.1p (CoS) value, MAC SA/DA, TOS precedence, DSCP value, IP SA/DA, TCP/UDP port range.
    - 8 egress queues per port to support Strict (SP), Weighted Round Robin (WRR), and/or hybrid queuing (Strict + Weighted Round Robin queuing algorithms).
    - Eight hardware-based queues with flow-based classification and processing.
    - Ingress bandwidth rate limiting per port/flow in 64k increments.
    - Egress bandwidth rate limiting per port in 1Mbps increments.
- Wire-speed everything including switching, routing, ACLs, QoS, traffic redirection and Server Load Balancing.
- Featuring full wire rate (including first packet) and 10GigE single flow support.
- Native support for IPv4 and IPv6 for network future proofing
    - Full IPv6 support with hardware-based forwarding, classification and tunnelling.
    - Ability to interconnect the IPv6 “island” through an existing IPv4 network through hardware-based tunnelling.
    - Use of IPv6 across public organizations.
    - Ability to connect to the IPv6 backbone.
    - Ability to control IPv6 flows with extensive QoS/ACL policies.
- The proposed product must support extensive Multicast (L2 non-IP/IPv4/IPv6) IM-DM, PIM-SMv2 and PIM-SSM and DVMRPv3.
- Wire-rate multicast using hardware-based replication in all configurations.
- The proposed product must support high-density traffic aggregation in mission critical business network cores.
- The proposed product must provide fast network response time; including hardware based source learning, and first packet handling in hardware.
- The proposed product must support Server Load Balancing (SLB).
- Full power-over-Ethernet (PoE) IEEE 802.3af support.
- Residential bridging features: DHCP option-82, DHCP-Snooping and Port Mapping.
- Routing Protocols: IPv4 and IPv6, RIPng, RIPv1/v2 and OSPFv2andv3 and OSPF-ECMP and BGPv4.

Mandatory Technical Requirements for a Highly Manageable system

- NMS: Data and services network management including OneTouch QoS (PolicyView with OneTouch QoS centralizes and simplifies QoS configuration network wide) and SecureView.
- Carrier-Class Dynamic Group Mobility (GM).
- The proposed product must support dynamic user mobility with authentication that would allow the user to connect securely anywhere and have access to their resources without admin intervention or reconfiguration.
- The proposed product must support converged applications such as the VoIP.
- Diagnosing Switch problems:
    - Port Mirroring; Port based, port mirroring for troubleshooting, supports four sessions with multiple (24) sources-to-one destination configuration.
    - Port monitoring feature that will allow capture of Ethernet packets to a file, or for on-screen display to assist in troubleshooting.
    - SFlow support to monitor and effectively control and manage the network usage.
    - RMON: Support of RFC2819 RMON group (1-Statistics, 2-History, 3-Alarm, and 9-Events).

- Switch Health Monitoring.
- Monitoring Memory Tools and Switch Configuration.
- Switch Logging.
- Local (on the flash) and remote logging (Syslog).
- Logging into the Switch through Telnet, FTP, HTTP, SSH, SSL, and SNMPv1 and v2 and v3.
- Remote telnet management or secure shell access using SSH.
- Secured file upload using SFTP, or SCP.
- SNMPv1/v2/v3.
- Authentication or AAA Servers.
- Policy Servers; Authentication Servers such as RADIUS, LDAP, TACACS+, and ACE servers.
- Policy-Based Management with LDAP Directory Services.
- System File Management.
- Dual image and dual configuration file storage providing backup.
- The proposed product must support an intuitive CLI.
- The proposed product must support a web-based Element Mgmt with an easy to use point and click and with a built-in help for easy configuration of new technology features.
- The proposed product must support remote telnet management or secure shell.
- The proposed product must support secured file upload using SFTP, or SCP.
- Port based, port mirroring for troubleshooting, that will support four sessions with 24 sources to one destination configuration.
- The proposed product must support human readable ASCII based config files for offline editing and bulk configuration.
- The proposed product must support managing Switch Users Accounts and Partitioned Management features.
- The proposed product must support the management of Switch Security.
- The proposed product must support IGMPv1/v2/v3 snooping to optimize multicast traffic.
- The proposed product must support BootP/DHCP client that will allow auto-config of switch IP information to simplify deployment.
- The proposed product must support Auto-negotiating 10/100/1000 ports that will automatically configure port speed and duplex setting.
- The proposed product must support Auto MDI/MDIX that will automatically configure transmit and receive signals to support straight thru and crossover cabling.
- DHCP relay to forward client requests to a DHCP server.
- DHCP Option-82 and DHCP Snooping.
- Integration with an SNMP manager for network wide management.
- System event log.
- Network Time Protocol (NTP) for network wide time synchronization.
- Interswitching Protocols.
- Mapping Adjacency Protocol for building topology maps within the SNMP Manager NMS application .
- GMAP and GVRP for 802.1Q-compliant VLAN pruning and dynamic VLAN creation.
- SFN (Software Defined Networking)

6.3.1.1.2 Layer 3 Distribution Or Core Switch And Layer 3 Distribution Or Edge Stackable Switch

The following are applicable to a 24 Port Managed Ethernet Switch:

- Ports:
  - 22 auto-sensing 100/1000 ports (IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)
  - Media Type: Auto-MDIX
  - Duplex: Full Duplex - Auto sensing of communication speed and auto negotiation of duplex mode.
  - 2 dual-personality ports each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers) for 1000Base-SX, 1000Base-LX, 100Base-FX MM, 100Base-FX SM.

The following are applicable to a 48 Port Managed Ethernet Switch:

- Ports:
  - 44 auto-sensing 100/1000 ports (IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)
  - Media Type: Auto-MDIX
  - Duplex: Full Duplex - Auto sensing of communication speed and auto negotiation of duplex mode.
  - 4 dual-personality ports each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers) for 1000Base-SX, 1000Base-LX, 100Base-FX MM, 100Base-FX SM.

Layer 3 Capabilities of 24 and 48 Port Managed Ethernet Switches:

- Support Routing Protocols such as RIP v1/2 and OSPF.

The following are applicable to a 24 and 48 Port Managed Ethernet Switches:

- Protocols:
  - TCP/IP
  - NetBEUI
  - Spanning Tree
  - DHCP/BOOTP Interoperation
  - Domain Name System (DNS) support.
  - Trivial File Transfer Protocol (TFTP) and/or FTP support.
  - Network Timing Protocol (NTP) support.
- Management Protocols:
  - IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
  - SSH, SNMP v1, v2c, and v3 and Telnet interface support.
  - Has SNMP agent, Supports SMP MIB II, Supports Bridging MIB, Allows out-ofband management via serial port, Allows in-band management via telnet, Allows graphical management via Web interface, Supports RMON, Complete with management S/W.
- Standards:
  - All switches to be standards based
  - IEEE 802.3 (SNAP encapsulated tagged and untagged frames)
  - IEEE 802.3u
  - IEEE 802.3x
  - IEEE 802.1D
  - IEEE 802.1p Priority

    - IEEE 802.1Q VLANs - port based and Tagged VLAN from any port using standards-based 802.1Q tagging.
    - IEEE 802.3z/IEEE 802.3 ab
    - IEEE 802.3x Flow Control
    - IEEE 802.3ad Link Aggregation Control Protocol (LACP)
    - RFC 1534 DHCP/BOOTP Interoperation
- Mounting:
    - 19” standard Rack mountable with mounting kit.
    - Maximum use of 2 Rack Units (RU)
- Management Console:
    - Switch should be manageable through Console port, Telnet, SNMP, HTTP, RMON, HTTPS and SSH
    - Must have console port.
    - Provide console cable, power cables and operating manuals.
- Authentication:
    - TACACS+ and RADIUS authentication
- Administration:
    - Allows software upgrade via FTP/TFTP
- Performance:
    - Throughput up to 35.7 million pps (64-byte packets)
    - Switching capacity 48 Gbps
- Security Features:
    - Access Control List
    - Rate Limiting
    - Port Security (by MAC address filtering)
    - IP filtering
    - MAC based port level security, multilevel access security for console
- Indicators and Diagnostic LED’s:
    - Per-port status: Link integrity, activity, speed, full-duplex
    - System status: System, RPS, link status, link duplex, link speed
- Environmental Ranges:
    - Operating temperature: 0°C to 45°C
    - Storage temperature: -25° to 70°C
    - Operating relative humidity: 10 to 85%
- AC Input Voltage:
    - Standard South Africa Power Supply: 220/230 v (±10%), 50 Hz (±5%).
    - Must support power redundancy.
- Expansion through cascading:
    - Switch should be stackable i.e. manageable via single IP address, up to 8 units.
- Quality of Service:
- Other:
    - LAN Base Image installed
    - 16 Gbps switching fabric
    - Capable up to 8000 MAC addresses
    - Capable up to 255 IGMP groups.
    - Configurable maximum transmission unit (MTU) of up to 9000 bytes, with a maximum Ethernet frame size of 9018 bytes for bridging on Gigabit Ethernet ports, and up to 1998 bytes for bridging of Multiprotocol Label Switching (MPLS) tagged frames on both 10/100 and 10/100/1000 ports.
    - Up to 255 VLANs per switch.
    - Four thousand VLAN Ids.
    - Voice VLAN for voice traffic on a separate VLAN.
    - Dynamic VLAN assignment.
    - Dynamic, port-based security.

- Port security to authenticate the port and manage network access for all MAC addresses
- Unicast MAC filtering.
- Unknown unicast and multicast port blocking.
- SSHv2 and SNMPv3 based network security.
- Support port monitoring and mirroring.
- DHCP snooping.
- Multilevel security on console to prevents unauthorized users from altering the switch configuration.
- Rate limiting based on source and destination IP address, source and destination MAC address, using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps.
- Web based Setup to configure the switch
- Management capabilities on a per-port and per-switch basis.
- Support spanning tree per VLAN and Rapid Spanning Tree (IEEE 802.1w).
- Bandwidth aggregation through EtherChannel technology enhances fault tolerance and offers higher-speed aggregated bandwidth between switches
- Supports additional frame formats: Ethernet II (tagged and untagged)
- Allows VLAN operation, Supports priority queuing, Supports IGMP snooping, Supports DVMRP
- Support Jumbo Frames
- Must offer Carrier Class Availability (99.999%)
- Must offer support for in-Line Power for IP phones using IEEE 802.3af standard
- Must offer support for 16 ports aggregation using IEEE 802.3ad standard

- **Examples based on Alcatel Series:**
  - Omniswitch 6900-X40: Layer 3 Distribution Or Core Switch
  - Omniswitch 6900-X20: Layer 3 Distribution Or Core Switch
  - Omniswitch 6850E 48Port/24Port: Distribution Or Edge Stackable Switch
  - Omniswitch 6855 for industrial environments like the Fresh Produce Market.

6.3.1.1.3 Layer 2 Edge Stackable Switch

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The following are applicable to a 48 Port Managed Ethernet Switch:

- Ports:
  - 44 auto-sensing 100/1000 ports (IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)
  - Media Type: Auto-MDIX
  - Duplex: Full Duplex - Auto sensing of communication speed and auto negotiation of duplex mode.
  - 4 dual-personality ports each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot

(for use with mini-GBIC transceivers) for 1000Base-SX, 1000Base-LX, 100Base-FX MM, 100Base-FX SM.

The following are applicable to a 24 and 48 Port Managed Ethernet Switches:

- Protocols:
  - TCP/IP
  - NetBEUI
  - Spanning Tree
  - DHCP/BOOTP Interoperation
  - Domain Name System (DNS) support.
  - Trivial File Transfer Protocol (TFTP) and/or FTP support.
  - Network Timing Protocol (NTP) support.
- Management Protocols:
  - IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
  - SSH, SNMP v1, v2c, and v3 and Telnet interface support.
  - Has SNMP agent, Supports SMP MIB II, Supports Bridging MIB, Allows out-ofband management via serial port, Allows in-band management via telnet, Allows graphical management via Web interface, Supports RMON, Complete with management S/W.
- Standards:
  - IEEE 802.3 (SNAP encapsulated tagged and untagged frames)
  - IEEE 802.3u
  - IEEE 802.3x
  - IEEE 802.1D
  - IEEE 802.1p Priority
  - IEEE 802.1Q VLANs - port based and Tagged VLAN from any port using standards-based 802.1Q tagging.
  - IEEE 802.3z/IEEE 802.3 ab
  - IEEE 802.3x Flow Control
  - IEEE 802.3ad Link Aggregation Control Protocol (LACP)
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  - Maximum use of 2 Rack Units (RU)
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  - Switch should be manageable through Console port, Telnet, SNMP, HTTP, RMON, HTTPS and SSH
  - Must have console port.
  - Provide console cable, power cables and operating manuals.
- Authentication:
  - TACACS+ and RADIUS authentication
- Administration:
  - Allows software upgrade via FTP/TFTP
- Performance:
  - Throughput up to 35.7 million pps (64-byte packets)
  - Switching capacity 48 Gbps
- Security Features:
  - Access Control List
  - Rate Limiting
  - Port Security (by MAC address filtering)
  - IP filtering
  - MAC based port level security, multilevel access security for console
- Indicators and Diagnostic LED’s:
  - Per-port status: Link integrity, activity, speed, full-duplex
  - System status: System, RPS, link status, link duplex, link speed
- Environmental Ranges:

    - Operating temperature: 0°C to 45°C
    - Storage temperature: -25° to 70°C
    - Operating relative humidity: 10 to 85%
- AC Input Voltage:
    - Standard South Africa Power Supply: 220/230 v (±10%), 50 Hz (±5%).
    - Must support power redundancy.
- Expansion through cascading:
    - Switch should be stackable i.e. manageable via single IP address, up to 8 units.
- Quality of Service:
- Other:
    - LAN Base Image installed
    - 16 Gbps switching fabric
    - Capable up to 8000 MAC addresses
    - Capable up to 255 IGMP groups.
    - Configurable maximum transmission unit (MTU) of up to 9000 bytes, with a maximum Ethernet frame size of 9018 bytes for bridging on Gigabit Ethernet ports, and up to 1998 bytes for bridging of Multiprotocol Label Switching (MPLS) tagged frames on both 10/100 and 10/100/1000 ports.
    - Up to 255 VLANs per switch.
    - Four thousand VLAN Ids.
    - Voice VLAN for voice traffic on a separate VLAN.
    - Dynamic VLAN assignment.
    - Dynamic, port-based security.
    - Port security to authenticate the port and manage network access for all MAC addresses
    - Unicast MAC filtering.
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    - SSHv2 and SNMPv3 based network security.
    - Support port monitoring and mirroring.
    - DHCP snooping.
    - Multilevel security on console to prevents unauthorized users from altering the switch configuration.
    - Rate limiting based on source and destination IP address, source and destination MAC address, using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps.
    - Web based Setup to configure the switch
    - Management capabilities on a per-port and per-switch basis.
    - Support spanning tree per VLAN and Rapid Spanning Tree (IEEE 802.1w).
    - Bandwidth aggregation through EtherChannel technology enhances fault tolerance and offers higher-speed aggregated bandwidth between switches
    - Supports additional frame formats: Ethernet II (tagged and untagged)
    - Allows VLAN operation, Supports priority queuing, Supports IGMP snooping, Supports DVMRP
    - Support Jumbo Frames
    - Must offer Carrier Class Availability (99.999%)
    - Must offer support for in-Line Power for IP phones using IEEE 802.3af standard
    - Must offer support for 16 ports aggregation using IEEE 802.3ad standard
- **Examples based on Alcatel series:**
    - Omniswitch 6250, 6400 and 6450

6.3.1.2 Routers

Router characteristics:

- Modular chassis routers are preferred

- Hot swappable line cards
- Interface cards/ports:
    - 8 port 10/100/1000 Mbps Ethernet
    - 4 port T1/E1 with RJ48C connectors
    - 4 port serial (V.35/X.21)
- Data rates:
    - Non-channelized T1/E1: Up to 2Mbps
    - Channelized T1/E1: Minimum 24 x 64kbps
- Protocol Support
    - Point-to-Point Protocol (PPP)
    - Frame Relay encapsulation
    - High-Level Data Link Control (HDLC)
    - Multilink PPP (MLPPP)
    - Multilink Frame Relay (MFR)
- Manageable via:
    - CLI
    - HTTP
    - SNMP
- Management Capabilities:
    - System status warnings
    - Reporting
    - Detailed threat descriptions and remediation information queries
    - GUI user interface
- Diagnostics:
    - Digital diagnostic loopback
    - Payload loopback
    - Line loopback
    - Alarm Indication Signal
    - LED’s for: Active, Fault, Local Alarm, Remote Alarm, Carrier detect and loopback
- E1 Interface
    - Transmit/Receive rate: 2.048 Mbps
    - Framing format: CRC4, non-CRC4
    - DTE /DCE interface: ITU-T G.704/G.703
- T1 Interface
    - Transmit/Receive rate: 1.544 Mbps
    - Framing Format: D4 super frame and extended super frame
    - DTE /DCE interface: ITU-T G.704/G.703
- Channel Service Unit/Data Service Unit
    - Selectable cable length
- Routing
    - Static
    - RIP v1/2 dynamic routing
    - VPN routing and forwarding
    - Virtual Router Redundancy Protocol (VRRP)
    - Generic Routing Encapsulation (GRE): IP
    - Border Group Protocol (BGP)/OSPF dynamic routing
- Firewall Features
    - NAT (Network Address Translation)

    - Stateful packet inspection and filtering
    - Network Attack Detection
    - TCP reassembly for packet protection
    - Malformed packet protection
    - Protocol anomaly: IP, TCP, UDP
    - Application Layer Gateway
        - FTP
        - TFTP
        - DNS
        - DHCP
        - SIP
        - Network File System (NFS)
        - Real Time Streaming Protocol (RTSP)
- Qos
    - L3/4 traffic policy definition
    - Ingress policing
    - Egress shaping and priority egress scheduling
    - Differential Services (DiffServ)
    - Call admission control
- VPN (IPSEC)
    - Site-to-site VPN tunnels minimum 2000 tunnel interfaces
    - Encryption: DES, 3DES and AES
    - Authentication (MD-5 and SHA-1)
    - Perfect Forward Secrecy
    - IPSec NAT traversal
    - IKE with preshared key or PKI
- Intrusion Detection and Prevention
    - IP Spoofing, Backdoor and DoS Detection
    - Worm, Trojan and Reconnaissance protection
    - Protection against profileration from infected system
    - Request and response side attack protection
    - Traffic interpretation: Reassembly and Normalization
    - Prevention Mechanisms
        - Drop packets
        - TCP resets client and/or server
    - Notification via log viewer or SysloG
- LAN Features
    - STP
    - Bridging
    - VLAN support
    - Access, trunk and hybrid mode
    - Integrated Routing and bridging
    - Port Mirroring
- Network Services
    - DHCP relay/server
    - DNS client
    - FTP/TFTP client
    - Telnet server/client
    - Radius client

    - TACACS client
- Administration
    - Local administration db
    - Chassi manager (where relevant)
    - System management and logging
    - Support MIB's for example Standard and custom MIB's, MIB II
    - Ping and traceroutE
- Standards
    - IEEE 802.1D 2004 (STP)
    - IEEE 802.1X (Port-based Networkl Access Control)
    - IEEE802.1x (EAP)
    - IEEE802.1Q (Tagging)
    - IEEE802.2 (Logical Link Control)
    - IEEE802.3 (Ethernet CSMA-CD)
    - IEEE802.3ab (1000BaseT)
    - IEEE802.3z (1000BaseX)
    - ITU-T G.703. G.704
- **Examples based on Alcatel series:**
    - 7750 MPLS Service Router
    - 7705 Service Aggregation Router
    - 7710 Service Router
    - 7450 Ethernet Service Switch

6.3.1.3 Hardware Based Firewalls

Hardware Based Firewall Characteristics:

- State-full Packet Filtering - Must have a TCP State Aware Packet Filter Technology.
- Throughput 200Mbps scalable to 400 Mbps.
- Concurrent connections: 130,000
- Simultaneous VPN tunnels: 2000
- 168-bit 3DES IPSec VPN throughput : Up to 135 Mbps with VAC+ or 63 Mbps with VAC
- 128-bit AES IPSec VPN throughput: Up to 130 Mbps with VAC+
- 256-bit AES IPSec VPN throughput: Up to 130 Mbps with VAC+
- Support for unlimited number of networks.
- Support for unlimited number of users.
- Support Dynamic NAT and Static NAT. Capability to redirect the port requests to user configurable ports (PAT).
- Integrated Security – Must have an inbuilt Anti-spoof engine to drop all such packets.
- Ability to drop all the IP fragment packets.
- Protection against popular attacks such as ping-of-death attack, tear-drop attack, etc.
- Administrator must be able to configure the default timeout for TCP/UDP services.
- Ability to send mail alerts to the administrator.
- Ability to log the number of active TCP/UDP sessions.
- Must have firewall configuration backup and restore facility.
- IP Traffic Control to be based on Source, Destination, Protocols, Ports, etc.
- Provide secure encrypted Web-based Remote Management.
- Provide different privileges for administration and management.
- Display firewall server's current date and time in remote Administrative Console.
- Able to create policies based on Objects
- Must be able to reconfigure the firewall parameters and policies from remote console.

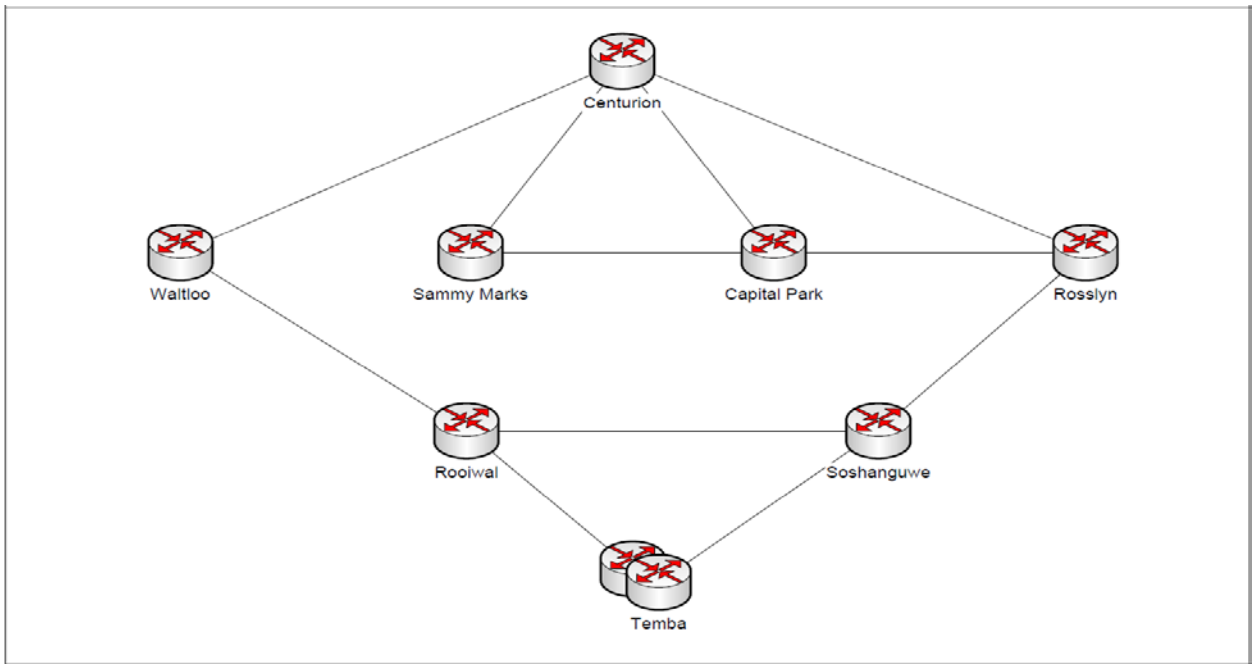
- Provide selective viewing of Logs based on source, destination, source port, destination port, rule number, time etc.
- Auto refresh the most recent logs while viewing.
- VLAN (802.1Q) Support.
- Electro Magnetic Compatibility (EMC): FCC Part 15 (CFR 47) Class A, ICES-003 Class A with UTP, EN55022 Class A with UTP, CISPR 22 Class A with UTP, AS/NZ 3548 Class A with UTP, VCCI Class A with UTP, EN55024, EN50082-1 (1997), CE marking, EN55022 Class B with FTP, Cispr 22 Class B with FTP, AS/NZ 3548 Class B with FTP, VCCI Class B with FTP.
- **[Examples:**
    - Fortigate FAMILY]

6.3.1.4 Transceivers/Convertors

- Depending on the situation, 100/1000Base-SX/LX (fibre) to 100/1000Base-T/TX (copper).
- Must be standards based. One or more of the following standards shall apply depending on the transceiver/convertor.
    - IEEE 802.3ab
    - IEEE 802.3z
    - IEEE 802.3u
- Connectors: SC/LC (fibre), RJ-45 (copper)
- Full Duplex Support
- Must support crossover detection and auto-correction
- Status LED for Power and Link/Activity
- Must function with standard South African supply voltage ie 220/230V single phase.

6.3.1.5 MPLS (Multi-Protocol Label Switching)

CoT has invested in a MPLS backbone and the tenderers must offer equipment that will integrate 100% with the existing solution. The existing backbone is shown below:



Examples based on Alcatel Series:

- 7210-M Service Access Switch
- 7750 Service Router
- 7705 Service Aggregation Router

6.3.1.6 Optical Service Switch

Characteristics:
- DWDM switch
- GigE and 10GigE multiplexing
- 1/2/4/8 Gigabit fiber channel multiplexing
- E1/DS1, STM-1, STM-4, and STM-16 multiplexing
- Ring and point to point from 10 to 40 Gb/s
- SDH-alike protection possibilities

Typical deployment:
- Data center interconnection
- Private WAN for large enterprises

Examples based on Alcatel equipment:
- 1830 Photonic Service Switch

6.3.2 Wi-Fi Equipment

The CoT has an existing Wi-Fi network, but this network will be extended in future. The network provides for:
- Free public Wi-Fi access to the public at Customer Care and Libraries
- Boardroom and building access via Wi-fi for CoT personnel
- Future inclusion of Wi-Fi blanket to cover the City.

Some futures that the network must be able to support:
- Security related to public and CoT users
- Redundancy solutions ie should the controller fail, a backup controller must enable continuous and seamless integration.
- The ability to load more than one SSID on an AP should the need arise ie for VIP Wi-Fi, Public Wi-Fi or normal CoT everyday use.
- Software related to Wi-Fi support, coverage, security, data usage etc.

Examples based on Alcatel series:
- Wireless LAN switches: Omni Access WLAN 6000 and WLAN 4000
- Software: OmniAccess Guest Manager
- Access Points:
    - Dual Radio Access Point AP105
    - Single Radio Access Point AP6
    - Remote Access Point OAW-RAP3
    - Instant Access Point OAW-IAP93

6.3.3 Network/Voice Monitoring

6.3.3.1 Types and Description of Monitoring

The following are normal types of monitoring:

Server Performance The items being monitored would include such things as CPU usage, server load, disk utilization, memory usage, and entries in selected log files. This monitoring can provide advance warning

	of impending system problems if the alert thresholds are set properly.
SNMP Monitoring	Almost every piece of equipment in a company network can be monitored via SNMP polling. This methodology uses device specific management information blocks (MIBs) to obtain additional information about a device's health. This information is collected at regular polling intervals. SNMP enabled devices can also be programmed to send SNMP trap information to message handlers in real time
Application Monitoring	Monitor the actual health and well-being of applications. An application can be active but performing so slowly that customers or employees can't use it. For example, this type of monitoring might be used to determine how fast server based applications respond to employees.
Bandwidth Monitoring	It provides a way to monitor usage and optimize the capacity of circuits, identify bottlenecks etcetera.
Agent Based Monitoring	This is a requirement for IT Managers who are serious about operating system and applications monitoring. It is unlikely that 99% uptime can be reached without employing this type of technology. A monitoring software agent would usually operate with a Smart Plug In (SPI) or Knowledge Module (KM) that was designed to monitor specific operating systems and applications such as IIS and SQL.

Network Monitoring Software is listed below as example of what the CoT expects from the monitoring environment:

Vital QIP	VitalQIP DNS/DHCP IP Address Management Software is a solution for automating IP address management services across networks.
VitalSuite	The VitalSuite web based performance management system provides IPv4/IPv6 network administrators with end-to-end, web-based visibility into geographically dispersed, multi-vendor, and multi-technology converged infrastructures. VitalSuite provides both historical and near real-time views into everything from complex contact centre transactions to mission-critical network resources. Carrier grade scalability provides support for millions of performance-monitored objects, allowing IT managers the ability to monitor, analyse, manage and predict performance from a single centralized location via simple to use workflow.

Omnivista Network Management

Data and Voice	OmniVista is a comprehensive set of network management applications that are designed for IP Telephony and IP Networking and which simplify the management of Alcatel-

	Lucent networking devices. OmniVista solutions allow managers to monitor network activity, configure and troubleshoot each device, as well as manage an entire network from a single platform.
Omnivista Air Manager	OmniVista Air Manager is a wireless LAN management software suite that provides centralized visibility and control over today's wireless networks. OmniVista is a true operations management solution that delivers a full set of capabilities including real-time user and device monitoring, centralized configuration and compliance management.
OmniAccess Guest Manager	Authenticates visitors, contractors, and employee owned mobile devices.
Service Aware Manager	The Alcatel-Lucent Service Aware Manager is a single management platform offering element, network and service management for advanced Layer 2 and Layer 3 network solutions and services, based on Alcatel-Lucent's Carrier Ethernet and IP/MPLS Service Routing devices.
InfoExpress CyberGatekeeper:	InfoExpress CyberGatekeeper offers a seamless, secure and scalable enterprise network access control (NAC) solution through its embedded network security framework. This framework includes a comprehensive security solution for verifying endpoint integrity through host integrity checking (HIC).
Alcatel-Lucent 8950 AAA	The Alcatel-Lucent 8950 AAA server delivers expanded functionality to address your deployment of wireless LANs and other networks deploying 802.1x, DIAMETER, and EAP protocols to support fixed-mobile roaming and blended multimedia services.
Omnivista Virtual Machine Manager	To manage virtualised platform.
Splunk	Splunk Enterprise is the platform for machine data. It's the easy, fast and resilient way to collect, analyse and secure the massive streams of machine data generated by IT systems and technology infrastructure. Troubleshoot problems and investigate security incidents in minutes. Monitor end-to-end infrastructure to avoid service degradation or outages. Gain real-time visibility and critical insights into customer experience, transactions and behaviour. Make data accessible, usable and valuable to everyone.
Websense	Web usage statistics, web based security threats (include real-time statistics).

6.3.3.2 Network/Voice Monitoring As a Service

The tenderers must price network monitoring as a service ie the CoT do not own the software, but are rather charged a monthly amount. This will entail:

- Providing all software and or hardware related to network management. Hardware to include the servers – ie turn-key solution.

- Providing all updates and patches related to network management software
- Displaying the software in the CoT based NOC (Network Operations Centre)
- Providing detailed reports and actions based on the reporting received from the tools.

6.3.3.3 Network/Voice Monitoring Purchasing of Software

The tenderer prices the individual software components based on the newest pricing detail. However, CoT is entitled to free version upgrades and patches during the contractual period. The software must be displayed in the NOC and detailed reports and actions must be provided on the reporting received from the tools. Servers will be provided by the CoT, however requirements for the servers to be provided by the vendor. Software to support virtualised environment.

6.3.4 Security

Network security devices (software/hardware based) to be included in the pricing:

- Firewalls (Internal to network and edge protection) for example Fortinet Unified Threat Mangement
- InfoExpress Cybergatekeeper
- Wi-Fi security

6.3.5 Voice Equipment

The voice equipment must integrate 100% with the Alcatel Product Range. Any solution offered to Council must integrate seamlessly without *any loss* of features. No current feature may be implicated or lost in this process. Should any service provider offer a solution other than the current deployed infrastructure deployed, said service provider must guarantee said integration. Any current and future development cost to enable this requirement will be for the service providers account. This will extend into the warrantee and guarantee period.

6.3.5.1 System Architecture

6.3.5.1.1 IP PBX General Specifications and Infrastructure

- The system should provide telephony functions on any underlying data infrastructure – it must be scalable to support and voice/data convergence and traffic increases – as new sites are brought into the network.
- The system call server must be based on SW easily updatable and manageable
- Gauranteed system uptime of 99,999%
- The systems should be able to use SIP end points as extensions for the users and SIP trunks to be interconnected with other IP PBX and to access value added applications like collaboration or Unified Messaging
- The system should offer the choice between distributed or centralized communication servers and media gateways without jeopardizing the WAN Voip links, features level and applications availability
- The system should integrate with TDM equipment and enable any mix between IP or TDM and Wired or Wireless phones
- The system should be scalable, distributable and modular
- The system should manage CAC (Call Admission Control) mechanisms to optimize the usage of the bandwidth in the WAN for multi-site configurations
- The system must manage a large range of telephonic services, integrated contact center applications, collaboration and Unified Messaging applications
- he system must be able to interoperate with other telephone systems and endpoints using the below standards – Qsig GF, Qsig BC, DPNSS, DSS1, H232, SIP.
- The IP PBX system should provide standard APIs compliant with Internet standards like XML, SOAP & WSDL for CTI, call control and management functions

- The IP PBX system should also provide legacy APIs such as CSTA, TAPI, CSTA
- The IP PBX system should provide call routing points for connecting Contact Center applications

6.3.5.1.2 System Hardware and Software

- The IP PBX hardware must have high flexibility in term of capacity, system upgrade and support IP & TDM without external interfaces.
- The Call Server should able to support minimum 15000 users in a stand alone configuration and support up to 100 000 users in a virtual and multi-servers network group.
- The Call Server should able to handle traffic minimum 300K BHCA.
- The system must support the following external telephony interface signalling: E1 CCS PRI (VN3-4-6-7 /ETSI) DASS2, E1 CAS (R2, Q421, MFC Ericsson, Q23, Decadic), T1 CCS generic, T1 CAS, T0 ISDN BRI (VN3-4-6-7 / ETSI), E&M, Analog Loop Start and Ground Start (with FSK and DTMF CLIP).
- The switching must be able to handle Power over Ethernet devices. PoE devices must be managed for: Economic efficiency according to device needs, Security to avoid overload of the system or the device.
- For bandwidth intensive users, the bidder should be able to supply a swich device to distribute PoE to supplementary Ethernet devices.
- The device must be an economic, plug and play device that offers: auto negotiated 10/100/1000 BT transfer, port-based and 802.1Q VLAN support, 802,3af remote power.
- The proposed system should be based on an “open” software architecture, Linux being the preferred one.
- The architecture based on soft-switches should permit the geographical relocation of the communication servers through a standard IP network. Media Gateways should be carrying the interface cards, which should generate their own feeds from a common source.
- The system's software can be hosted in appliance servers or in blade servers architectures
- The system must manage, control and support a range of IP telephone stations for both voice and telephony applications as well as IP application stations for voice, telephony, and Web services support
- The proposed system must support native IP communications in direct or "peer-to-peer" with only the telephone signaling transiting back toward the controlling communications server.
- he voice and signaling frames should be marked [tagged] in order to be recognized. The standards of marking supported will be: Level 2: IEEE 802.1p/Q and Level 3: TOS / DiffServ
- The system should support for voice encoding the following standards: G.711, G.723.1, G.729A.
- The proposed communications system must support H.323, SIP, XML technology
- The proposed system should integrate an H.323 gatekeeper server, without external equipment, that offers the following services: - Automatic registration of the H.323 terminal and assignment of a call number by the RAS protocol; - Resolution of the address, the terminal H.323 can be identified by its call number or by its IP address that can be assigned dynamically by a DHCP server; - Establishment of communications in direct mode.
- The proposed system should include the gateways required to allow the buyer to acquire H.323 or SIP devices to interoperate with the traditional telephony devices (digital stations, IP, analog, private or public lines).
- The proposed system should permit the integration of SIP terminals with other terminals. The SIP modules are : SIP Proxy, Registrar and Gateway

- The hardware of the proposed system must be compliant with the European directive: Restriction of Hazardous Substances in electrical and electronic equipment (RoHS)
- The proposed telecommunication system should allow the use of high level XML APIs based on Web technology standards (XML/SOAP) to ease creation of telephony and call control features for integrating telephony services into web applications.

6.3.5.1.3 Required Profile of the proposed solution

To provide an economic future-proof network, it is important that the current and future working methods should be studied. An audit must be done to qualify and quantify these different types of communications for the clients needs and requirements. Based on this type of study the bidder should be able to:

- Determine the types of telephony hardware devices required by the different types company personnel
- Determine the types of telephony services required for the company personnel
- Provide the reasons for the choice of products
- Based on the findings the bidder should be able to provide the devices and services listed in the audit

6.3.5.1.4 System Management

- *The IP PBX system should provide a suit of applications and tools to permanently evaluate and report the operational health of the system. It should provide the following functions:*
- Software licensing check
- Automatic recognition of plugged sets
- User moving
- Monitoring of all the events on the system
- Capture of performance and level of use of the resources
- Register and log all calls and give accounting information
- Monitor and register all users, attendants, trunks activity to generate traffic and level of use analysis
- The IP PBX system must include the possibility to have remote maintenance access via dial-up having access to the system for configuring, diagnosis and monitoring. This access must be protected with security mechanism to prevent unauthorized intrusions.
- The system must include a dedicated management server/platform that will be based on the latest technologies, such as JAVA/JEE. This server should support a minimum of five (5) clients having different access rights to the applications
- The management platform must provide a single graphical client (Graphical User Interface GUI) as well as a web based interface
- The Management platform must provide web access allowing the administrator to manage the system to use any PC with an internet browser
- The management platform must use a client-server architecture allowing different administration clients to be connected to the system
- *The management platform must perform at least the following tasks:*
- Configuration and programming of services, users, categories and all system parameters and features. This module must provide centralized management in local or remote environments of a single system or a network. The network manager will be able to quickly and easily edit, create or delete any network object, by the use of import/export functions and multiple operations
- Faults and Alarms management of all the incidents and fail reports generated by the system itself informing date, hour, severity level and action recommended to take. This module must be able to centralize the alarms and events of the system, and

- Notify an alarm depending to the severity level sending an e-mail or activating an script performing an specific action
- Register and generate statistics for the alarms and events in the network in a daily scheme
- Each Alarm must include at least: An identification number, The severity level, The manage object, The notification time, Additional Information, The event type, The probable cause, A Fault diagnosis.
- Generate reports and graphics about the statistics of the alarms and its correspondent resolution time

- Accounting of all calls generated by the users including cost, date, hour. Must provide different options to group the billing of the calls (cost center, extension number, trunk, user, city/area associated to dialed numbers). *The accounting module must be able to:*
- Adapt to the financial organization of the company along the cost centers and the organization levels
- Manage carriers' fees to apply specific costs. Must be able to manage multi-carrier schemes
- Define thresholds for phone usage and Tracking/monitoring this activity, providing a graphical view of the accounting thresholds per user, cost center or group

- Generate reports and graphics classified by: User, Cost Centre, Organizational Level, Duration, Pin, Project Coide, Number Dialed (Destination), Carried used.

- Performance and traffic Analysis of the operation of the system. This must include at least the following information:
- Measurement of response time
- Measurement of the VoIP traffic
- Statistics on the quality of VoIP calls
- Statistics on the line-occupancy ratio for incoming calls
- Reports and graphics on attendant, trunks and users traffic
- Occupancy rates of the different internal and external links
- Average time spent waiting for an attendant

- The performance module must provide specific tracks on the voice over IP calls to better follow-up of the VoIP traffic and quality, for this, the system must measure:
- VoIP volume of traffic (volume sent, received and lost)
- It must generate reports of this activity by periods of time (hourly, daily, monthly)

- Optional must provide:
- Directory, module to manage the telephone directory. This must be LDAP compatible to be synchronized with other directory applications, must also allow web access and provide information on all desktops allowing click to call features to the users.
- The management server should provide an application that offers a topological view of the telecommunications system that constitutes the organization's network, as well as the links that exist between sites.
- The management platform must allow the administrator to generate reports and graphics of the activity per period of time in terms of traffic, accounting and alarms and giving the possibility to generate statistics of all this analysis. Those reports must be predefined but the option to personalize the reports must be also available. These reports should be exportable in HTML, pdf, excel and LDAP(.ldif) formats
- All IP PBX management applications (Fault & alarms, Configuration, Accounting and performance) should belong to a single platform and a single image for data storage, minimizing operation expenses.

- Optionally the management platform should offer a monitoring module which allows the administrator to easily monitor the accounting thresholds of the users of cost centers in graphical interface and must allow to send an e-mail or an alarm in case of threshold crossing.
- The management platform must include an troubleshooting & diagnosis tool accessible by WEB to be used by non expert administrators
- The management platform should be able to be integrated with enterprise global network management platforms (like CA Unicenter TNG, HP Openview, or IBM Tivoli) using standard protocol SNMP.

6.3.5.1.5 System Security

- The bidder must only propose an offer that meets with at least the EAL2 requirements of the Common Criteria (ISO-15408) standards
- The system must support centralized firewall management
- The system must support dynamic pin holing to limit access security breaches

- *Call Server Security*
- The Operating System used by the call server must not use or natively support network resource sharing services (such as NFS, Samba, LPR, etc)
- The Call Server and Media Gateways must provide self-protection mechanisms to counter Denial of Service attacks
- The call Server must avoid the usage of possible virus, worm and trojan infestation points, sucha as internal e-mail servers
- The call server must avoid the usage of automatic "download & execute" programs or services from databases or Internet inbound connections
- Internet access from the call server must be restricted to administrator initiated remote maintenance tasks only
- The System must support Network Time Protocol V4.1.2 (RFC 1305) to synchronize the system data/time of network devices
- he System must support Syslog services for both internal and external command and configuration control accounting with a minimum of 5 day history
- he Call Server must not employ the use of a 'default' password that is viable beyond the period of installation.

- The password & access control must include at least:
- Shadow Passwords to prevent the possibility of an agressor to easily read or deduce system or account access passwords.
- Password Aging with configurable time periods
- Usage of MD5 algorithm (or stronger) for password encryption
- Internal OS controls for remote point of access restriction and service availablity. (i.e. TCP Wrappers & Trusted Hosts)
- Account access authentication/restriction using external RADIUS resources.

- Media Gateways should not host services such as proxy, FTP, Telnet or local dynamic routing to prevent expoitation in Distributed Denial of Service attacks.
- IP Phones should not support direct, external initiated, connections via HTTP, telnet, FTP, TFTP or any othe protocol as means to prevent distributed Denial of Service attack exploitation.

- *Network Security*
- The system should offer maximum availability , with the switchover of call control processing functions to an alternate or redundant processor (or soft-switch control point) in the even of signifigant fault. The redundancy scheme should conform to the model used in most computer systems: the complete "mirroring" of the information (both static and dynamic data.) The switch over between 2 redundant call control procesors should not interrupt existing and established communications.

- All critical resource elements (call server, hard disks, data bases, IP interfaces, DSP resources, clocking sources, etc.) must be redundant and in a hot-standby configuration, allowing to install them in two (2) different datacenters physically separate
- Media Gateways must have survival mechanisms that allows them to maintain nearly 100% of the telephony services for their users, in case of failure in the WAN links where the signaling with the call server drops.
- IP Phones must support 802.1x (EAP-MD5 or better) for authentication and access control to the network, this mechanism must allow the user to be connected to the call server once he has passed the authentication process; not before.
- The system should have the capability to, based on standard mechanisms (such as 802.1Q and DHCP), assign automatically the corresponding voice VLAN number to the IP station clients during IP station initialization, allowing for the separation of voice and data traffic at the IP station.
- The IP station must have the ability to strip any VLAN tags assigned to traffic entering the network through the 'guest port' of the IP station, and further have the ability to switch that traffic into an identified data VLAN, further enhanceing enforced voice and data traffic seperation.
- The IP station must have the ability to disable its 'guest port

- *Management Security*
- Administration users connecting directly to the Call Server (console) must be authenticated via a RADIUS server before gaining access to the call server.
- All management traffic between a remote console/session and the call server must be encrypted. (SSH for direct command line sessions, HTTPS(SSL) for web sessions, SFTP for file transfers, etc.)
- Administrators connecting to a management platform must be authenticated via a RADIUS server prior to gaining access to the management platform
- Management flows between the management platform and the call server must be encrypted (SSH, SSL, CMISE, SNMPv3)
- The management platform must provide Role Based Account Management to define different levels of administrator access depending on specific function responsibility.
- The management Platform must provide a backup mechanism for all critical system information in both a manual and an automatic/scheduled archival and a Disaster Recovery mechanism.

- *Application / Communication Security*
- The IP PBX system should provide complete encryption capabilities with the ability to encrypt all traffic (media and call control signaling) between IP phones, softphones, call controllers, media gateways and all other associated endpoints via a strong encryption algorithm (AES, IPSec and SRTP, for example).
- The encryption solution should be hardware-based in order to eliminate system degradation and transmission delay times.
- The system should encrypt the voice content as well as the signaling between the IP station and the call server.
- The encryption solution should be easy to deploy with factory pre-installed certificates and automatic key distribution facilities, requiring no “at-the-phone” intervention
- Wireless IP Phones must support WPA2(AES) for traffic encryption proposes
- For multi-node solutions, IP stations must be capable of communicating via encrypted streams between any and all physical and logical network areas
- Application users should be authenticated using a RADIUS system before being granted access to application servers or associated resources.
- Any web based application must use HTTPS encryption

6.3.5.1.6 Telephony Services

The offered system must support the following services without any external/additional server to support them:

- Text mini-message between advanced sets
- Reception of absence mini-message from the called user
- Calling Line Identification Restriction (CLIR) for local / internal calls
- Communication timeout on outgoing call
- Barring for internal and external calls
- Call Waiting on: Busy set, busy hunting group, busy voice mail
- Intrusion on busy set
- Intrusion on busy set: On no Reply, On busy
- Call back to last caller: Local / Internal, External
- Automatic call back (activate / cancel) on: No reply, busy set, busy trunk group
- Call back request (activate / cancel) on: No reply, Busy Set
- Call back request notification by : LED on the user's set, Icon on wireless phones, Voice guide for analog sets
- Dial by name with central directory repository
- Last number redial
- Multiple redial
- Abbreviated dialing
- Automatic call set-up on unhook
- Private call / Personal Identification Number (PIN)
- Distinctive ringing for internal and external calls on all types of sets
- Call Overflow: Overflow on either busy or no reply, Overflow on both busy and no reply, Overflow on out of order
- Timed call overflow on no reply
- Call Pick up: Individual or in group
- No Replied Calls Repertory: Local / internal calling numbers with caller name, date and time of calls
- Enquiry call / enquiry call cancel
- Call transfer on: Reply, No reply, Busy
- Call transfer to: Set, Hunting Group, Attendant, Voice Mail, Trunk to call transfer, Trunk to timed transfer
- Three Participants Conference (Multiple)
- Meet-Me Conference
- Announcement / Paging on Loudspeaker
- Announcement / Paging on Loudspeaker
- Calling party name identification (CNID)
- Direct inward dial (DID)
- Direct outward dial (DOD)
- Direct inward system access (DISA)
- User set creation : user validation of his set created by attendant
- User moving : personal plug in / plug out by prefix
- Call recording on voice mail
- Voice guides indicating/helping users independent of type of set
- Outgoing call with business account code (by prefix or suffix)
- DTMF / Pulse Transparency
- Appointment Reminder

- Call Hold
- Automatic exclusive hold (in case of enquiry call or call waiting consultation)
- Manual exclusive hold (by Hold or line key or by prefix)
- Common hold (by Common hold key)

- Mutual hold (initial hold by Hold key)

- Call Forwarding:
- Unconditional
- On no reply
- On busy
- On Busy or No Reply
- On ringing (Call Deflection)

- Forwarding destination:
- Set
- Voice Mail
- Hunting Group
- Attendant of Attendant Group
- Call Centre Group
- Automated Attendant
- External Number

- Substitution
- Monoline or multiline mode for advanced sets
- Multiline key per directory number for advanced sets
- Multidirectory number (DN) for advanced sets

- Multidirectory numbers (DN) with supervision (indication of state) of:
- Set
- Trunk
- Trunk group

- Manager / Secretary features:
- Call Filtering with manager control
- Manager/Secretary hot line
- Private Line for Manager set
- Absent secretary key
- Secret listening of the secretary by the manager
- Multiple Managers / Multiple Secretaries

- Twinset: Two multiline sets with (same) Directory Number (TDN) and common voice mail and accounting

- Personal password for
- set lock override for DOD
- set unlock
- Substitution and DISA
- DND
- general minimessaging consultation
- programming individual repertory
- key programming
- follow-me
- remote forwarding
- private call
- consultation of no replied calls repertory
- consultation of no replied calls repertory

- Hubting Groups

- Do not Disturb

6.3.5.1.7 End User Devices and Terminals

- End Users must be able to access all telephony services
- Voice prompts or guides (multi language) the system should guide users during the various steps needed to activate specific features by means of voice guides that indicate the services available at each stage of a call.
- Multi-language display on TDM and IP stations - The language presented on the station displays must be changeable by the user directly. When the user makes this change, the modification of the display language will automatically synchronize the language of the vocal guides and the prompts on the voice-messaging component.
- Call (dial) by name - Users whose station is equipped with a display and alphabetic keyboard should have the capability to call, to transfer, or forward calls to other internal or external parties by entering their NAME.
- Multi-key / Multiple-number stations - This function allows a user with a station that is assigned only one number, to simultaneously establish several outgoing or incoming calls. Each station key can be programmed for a different extension number, to permit easy differentiation of incoming calls.
- Call Screening - Several screening stations can supervise a screened station. A screening station can screen several stations and lastly a station can have the status of screening station and screen station simultaneously
- Work groups - Users should be able to clustered in Supervised workgroup, station group or Intercom group
- Text messaging - Users whose station is equipped with a display and alphabetic keyboard must be able to conveniently access a text messaging service, allowing them to exchange short messages from terminal to terminal
- Automated attendant - the system should be equipped with an automated attendant system that, under designated conditions, welcomes outside callers, and proposes (in an interactive manner) a way to reach a desired service or pre-defined party
- Music on hold - The music source will support X seconds of operation, and should provide a good tonal quality. For reliability, the system proposed should be digital (magnetic devices are excluded) regardless of whether it is integrated into the system or external to the system.
- Direct Inward System Access – DISA - allow a user who is calling from outside of the system to establish an internal or external system connection from his or her DTMF telephone.
- Remote management of the telephone - allow a user who is outside of the system to modify the answering modes of his or her telephone terminal (voice messaging, external callback, etc.)
- IP Telephone stations should support dial by name features using alphanumeric qwerty integrated keyboard

- <u>IP Telephone stations should support:</u>
- 802.1x (MD5) for authentication
- Remote power feed per the 802.3af standard or local 120 / 230 -volt feed
- Auto-sensing 10/100 Ethernet switch interfaces
- PC port 10/100
- IP address Assignment by DHCP or statically configured
- QoS (Internal the station and priority to the voice signal)
- Frame marking voice level 2 802.3 p / Q and level 3 ToS / DiffServ
- Transparent recovery of frames by the associated PC (not by the station)
- Fixed or dynamic assignment of the IP address by customer DHCP
- AES for voice content encryption
- G.711, G.723.1 and G.729a Audio compression

- IP and TDM Telephone and application stations should support:
- Large color or black and white adjustable screen at least for the IP phones
- Context-sensitive keys associated to the display – These contextual keys are linked to the context displayed on the screen to directly activate functions
- Navigation keys to navigate inside the graphical interface (change of application or context, return to the home page)
- Numeric keypad to dial a number or enter digits in a entry field
- Integrated alphabetic keyboard for functions such as text messaging and dial by name
- Full duplex hands-free mode with echo cancellation · Audio operation to tune audio levels, mute, loudspeaker,
- Connector for headset or additional speakerphone
- Automatic and transparent switch from one to another communication mode (headset, handset, hands-free, etc.)
- Wireless Bluetooth® capabilities (Based on 1.2 Bluetooth© specification) at least for the IP phone
- Open to applications: Access to corporate or external Web based application via third party SDKs, APIs (XML, SIP)
- The system must support an IP Softphone application that allows the users to manage their calls from a PC. This user must have access to the full set of telephony services without any degradation. The voice should be manage by the multimedia resources of the PC
- The system should support PC based Attendant terminals that have a color screen, as well as attendant station software that can be used on PCs that are not dedicated to the attendant operation

- *Attendant operator positions should support the following features:*
- Station Supervision
- Manual or Automatic answer
- Call by name to internal or external parties
- Text Messaging
- Multiple Attendant positions
- Call Recording

- The phone sets should support chinese and russian languages characteres, this should be for the information displayed on the screens and for the alphanumeric integrated keyboard
- The system must support an Attendant IP softphone application that allows the operators to manage the calls from a PC. This application must support the same features of the Attendant operator. The voice should be manage by the multimedia resources of the PC

6.3.5.1.8 Wireless Terminals

The system should support a fully integrated and feature rich wireless phones solution for either TDM or IP sets

- Telephone sets must comply with current RoHS requirements
- he mobile phones should be tested and certificated for: Dust, Humidity, Physical Abuse (Drop Test)
- he level of services offered on either TDM and IP wireless sets must be the same of the desktop phones and only restricted by each kind of set ergonomics itself.

- *Mobility requirements*
- The system must provide for: Dect, VoWlan, Cellular Extension, Dual Mode, Softphones, VPN

- Mobile Applications such as: Microsoft Win 5/6, Symbian, Nokia Intellisync Call Connect Client

- *IP Wireless Phones*
- The IP Wireless Phones should support WiFi 802.11b 2,4 GHz radio
- The IP Wireless Phones should support WiFi 802.11b 5,150_5,825 GHz radio
- The IP Wireless Phones should support G.711a, G.711mu and G.729 audio compression codecs
- The type of transmission should support 802.11a, 802.11g: Orthogonal Frequency-Division Multiplexing (OFDM), or 802.11b: Direct Sequence Spread Spectrum (DSSS)
- Transmission data rates should be in the 802.11b network: 11, 5.5, 2, 1 Mb/s, auto rate selection, or for 802.11a and 802.11g: up to 54 Mb/s
- The IP Wireless solution must offer a QoS on the WiFi radio spectrum solution
- If a spectra link Voice priotiy is used - Spectralink Radio Protocol- Timed Delivery- Spectralink CAC

- *Without Spectralink :- WiFi Multimedia (WMM)- U-APSD- Tspec, the IP wireless phones should have at least following functions*:
- 128x64 pixels display
- 4 dynamic keys having function according communication state
- 1 Key to access the functions menu of the phone
- 1 key to navigate on the menu
- 1 function key to access a customization menu
- Option to connect a corded headset

- The IP Wireless phones must support IP address assignment by DHCP

- *The IP Wireless phones must support the following standards for security features:*
- 128 bit static Wired Equivalent Privacy (WEP)
- WiFi Protected Access (WPA)
- WPA Pre-Shared Key (PSK)
- Temporal Key Integrity Protocol (TKIP)
- IEEE 801.11i, WiFi Protected Access 2 (WPA2)
- Advanced Encryption System (AES) Algorithm
- The telephone must support G.711, G.729a/ab voice encoding

- The IP Wireless phone must provide easy access to the dial by name features of the IP PBX system
- In addition to the standard 256 Latin characters, Greek, Cyrillic and Unicode characters should be handled
- Supported languages should include: French, English, Spanish, German, Dutch, Portuguese, Italian, and Greek
- If required by the client, a push to talk feature should be available

- *TDM Wireless Phones*
- The system must offer a range of TDM Wireless Phones that support the below standards:
- Digital Enhanced Cordless Telecommunications (DECT): 1880 - 1900 MHz
- Digital Enhanced Cordless Telecommunications (DECT): 1900 - 1930 MHz
- The TDM Wireless Phones should have at least following functions:
- Graphic Display with monochrome or color availability, as required by the client
- Dynamic keys
- Menu access key
- Navigation Key

- Directory Key
- Trackpoint key
- Volume Key
- Option to connect a corded headset
- As required, a loudspeaker should be available
- The TDM Phone should support the following security features
- International Portable User Identity (IPU-I) for user identification proposes
- 128 bits encryption key for authentication
- 64 bits key for signaling and content encryption

- The TDM Wireless phone should support (for DECT) the GAP and Advanced GAP (AGAP) mobility level of services
- The TDM wireless phone must provide easy access to the dial by name features of the IP PBX system

6.3.5.1.9 Voice Messaging Systems

- Voice Messaging system must be fully integrated to the call server and should not require external server to be hosted
- Voice Messaging system must be manageable from the system management platform
- Answering or answering with date stamp - The system should provide voice mailbox holders the choice of two functions: answering the messages or answering them with a date stamp
- When a call is forwarded to the voice messaging system, the box holder will be able to chose between two personalized announcements. If the personal announcement has not been recorded, the standard system announcement will be substituted automatically.
- Recording of calls conversation - The holder of a voice mailbox must be able to take advantage of this service to record internal or external calls. Recorded calls will receive the same service as messages that have been left by callers.
- Forwarding of voice mail messages - The box holder will be able to send a copy of previously received messages to other boxes (with or without requesting acknowledgement of receipt).
- Call by name - To provide universal access, it must be possible to select a voice mailbox by its name by using the telephone dialing keypad. The caller will be guided in this operation by voice prompts.
- Multiple languages - To ensure consistency with the system voice prompts, the proposed system should be multi-lingual, offering four different languages
- The voice messaging system should be centralized or distributed to serve different sites
- The notification of messages must be on: LED/Icon on Phone, Voice Guide, Outbound call to any telephone number
- The voice messaging systems must provide silence detection to avoid recording of blanks at beginning or end of recording
- The System should allow distribution lists for message broadcast
- The System must allow the caller reaching a mailbox to choice forwarding destination
- The System must provide External Info-Service / Audiotex
- Additionally the voice message system must provide the following features:
- Record of standard Greeting
- Record of alternate greeting
- Record Name
- Urgent delivery option
- Voice mail navigation (rewind, pause, forward, play)
- Skip Greeting
- Confirmation to send recorded message

- Visual user interface with sensitive keys on large screen phones
- Autoplay of unheard/new messages
- Delete messages
- Save messages
- Reply Messages

6.3.5.1.10 Convergence

- To offer an economic solution, the client must be able to select an efficient IP network that takes into account voice, data and mobility
- The bidder must provide a coherent system that, by its convergent qualities offers superior network security , availability and manageability
- The convergence should provide seamless behaviour provided for the data and voice requirements
- The management should ensure the best possible use of routing to maintain voice and data traffic
- Availability
- The bidder must provide a high level terabit capacity switch that can handle a fully converged IP communication network
- Blade center support
- To reduce power and installation costs, the bidder must be able to offer PoE capabilities to distribute power as required according to the device class
- PoE must be managed in a secure way to provide for real economy and reliability
- Any homogenous network must be able to support up to 15000 IP users in a standalone and 100000 users in a multi network configuration
- Security
- Any converged network must include a comprehensive structured security architecure to cover traffic inside and outside the network
- The security management should be centralized to improve cohesion
- To maintain security and availability the converged solution must be resilient and offer: 802,1x authentication for IP phones, Voice/data LAN partitioning, dynamic firewall pinholing.
- Management

The converged solution must offer centralised management solutions for the entire system that can offer:

- QoS management
- Inventory management for all IP devices and addresses
- Performance management that can handle nearly all third-party devices switches and IP Phones
- Central firewall management

6.3.5.1.11 Value Added and Mobility Services

- Automatic Route Selection (ARS) to select the best route available to set up a call in terms of resources availability and cost
- The system should support free desktop / free seating features in stand alone or in multi-site

- The system should support an integrated cellular extension solution providing full IP PBX features from cellular-mobile phones supporting:
- he cellular extension application should not require external server, must be embedded into the IP PBX
- User of Cellular extension must be equipped with contextual menus running on any cellular phone: SIM based, Windows Mobile 5 and 6 based or Symbian based

- The system should support Dual Mode (WiFi/GSM) terminals, Symbian & Windows Mobile 5 or 6 based to run both cellular extension and/or WiFi softphones.

- The system should support Nokia Intellisync Call Connect Client
- The Dual mode cellular extension should be possible for SIP clients
- The system must allow remote users to be connected using softphone applications and having the same level of service as they were at the office desk
- The system should support users' mobile devices to work in tandem mode with the desktop phone

6.4 Other Conditions and Considerations

6.4.1 Quality Assurance: The successful tenderer shall have a quality insurance program to ensure the quality of both product and service.

6.4.2 Environmental: Suppliers shall make recommendations concerning earthing, lighting protection, environmental conditions (ie air conditioning) and other environmental requirements.

6.4.3 Technical Documentation: A detailed network topology/architecture for the above should be proposed and a properly labelled layout (showing, for example, clearly the used and free ports on the switch) of the network design should be handed over to the Client by the successful bidder during commissioning.

Supplier should provide a technical document for each building to the CoT:

- Configuration of the equipment (router, L3 switch)
- A layout of the system with proper labeling
- Troubleshooting procedures
- Complete technical details along with make, model number, complete specification, pamphlets, literature of the systems highlighting the special features must be supplied along with the bid.

All final-handover documentation (at completion of the project) shall be electronically either in word or acrobat format. Drawings to be in Visio format.

6.4.4 Expansion Protocols: Any expansion, ie, where new equipment is deployed or configuration changes, requires that the successful vendor will be responsible to update all diagrams/drawings applicable to the relevant environment. All changes and expansions must be managed in accordance with Council's existing Change Control processes and procedures in line with ITIL best practice. All new projects must be deployed adhering to these principles.

6.4.5 Third Party Network Management Tools: The CoT has deployed the following network management tools, i.e SMARTS In Charge and NetQoS. It will be required that certified personnel be deployed on site to manage and maintain all deployed systems and tools. Reporting must be made available either at set times during the month, and also for any ad hoc requests. All information on the systems are confidential and must at all times be routed through the correct channels and protocols.

6.4.6 Alcatel Product Range: It must be understood that CoT has in principle standardised on the Alcatel range of products for its Voice and Data switching equipment needs, and will not replace the existing infrastructure but is requesting companies that understands the Alcatel product range and will be able to enhance the existing infrastructure with seamless implementation of new equipment and the maintenance of any new equipment installed to the specifications and levels as determined by CoT, to tender.

6.4.6 Current Equipment: The prospective bidders need to be aware that current equipment have a maintenance contract in place for the foreseeable future and they need to work very closely together with the current supplier of maintenance services on the Alcatel equipment.

The successful bidder would also need to have certified on-site engineers able to maintain and enhance the current infrastructure. The prospective bidders also need to be well versed in installing additional services like video streaming solutions; radio links and other technologies as needed by CoT from time to time.

6.4.7 Materials And Workmanship: Materials and workmanship to be of the highest quality.

6.4.7.1 Delivery: New equipment must be delivered within 6 (six) consecutive weeks from date on the official CoT order to the contractor's premises. Equipment will then be inspected at the contractors premises. No supplies shall be shipped or delivered to the **place of acceptance** until the Contractor has received a delivery order from the Project Manager. The Contractor shall be responsible for the delivery at the place of acceptance of all supplies and supplier's equipment required for the purpose of the contract. The Contractor shall bear all risks relating to the goods until provisional acceptance at destination.

The supplies shall be packaged so as to prevent their damage or deterioration in transit to their destination. Packaging must be as per accepted international standards for air/surface transportation taking into account the climatic conditions prevailing in South Africa at time of delivery. The packaging shall be disposed by the contractor. Each delivery shall include all necessary documents as specified in the technical specifications (operating and maintenance manuals, drawings, material, conformity or test certificates and certificates etc).

The necessary documents shall include an inventory list of items delivered indicating the serial numbers of the goods provided. All operating and maintenance manuals shall be in English. Each delivery must be accompanied by a statement drawn up by the Contractor. Each package shall be clearly marked in accordance with the order number and equipment it contains. Delivery shall be deemed to have been made when there is written evidence available to both Parties that delivery of the supplies has taken place in accordance with the terms of the contract, and the invoice(s) and all such other documentation have been submitted to the Contracting Authority.

6.4.7.2 Spare Parts: To maintain the network it is expected that the bidders must have a minimum of R10 million in spares and stockholding at their own premises and not in a bonded warehouse or distribution channel warehouse, proof of this must be supplied. It is a condition that equipment must have spare parts available for at least five years after expiry of the guarantee period or alternatively equipment must be replaced free of charge if spare parts is not available for said period. In the event of termination of production of the spare parts, advance notification to CoT to allow it to procure the parts required. In such cases, the Contracting Authority may choose to purchase from the Contractor, it being understood that this choice shall not release the Contractor from any warranty obligations under the contract.

6.4.7.3 Warranty: The Contractor shall warrant that the supplies are new, unused, of the most recent models and incorporate all recent improvements in design and materials, unless otherwise provided in the contract. The Contractor shall further warrant that all supplies shall have no defect arising from design, materials or workmanship, except insofar as the design or materials are required by the specifications, or from any act or omission, that may develop under use of the supplies in the conditions obtaining in the country of the Contracting Authority.

The Contractor shall be responsible for making good any defect in, or damage to, any part of the supplies which may appear or occur during the warranty period and which:

- results from the use of defective materials, faulty workmanship or design of the Contractor; or
- results from any act or omission of the Contractor during the warranty period; or
- appears in the course of an inspection made by CoT.

If any such defect appears or such damage occurs during the warranty period, the Contracting Authority or the Project Manager shall notify the Contractor. If the Contractor fails to remedy a defect or damage within the time limit stipulated in the notification, the Contracting Authority may:

a) Remedy the defect or the damage itself, or employ someone else to carry out the work at the Contractor's risk and cost, in which case the costs incurred by the Contracting Authority shall be deducted from monies due to or guarantees held against the Contractor or from both;
b) or terminate the contract.

The on-site comprehensive warranty shall be for a minimum period of one year after commissioning of the equipment. During the warranty period, the call back time of the supplier for any problem will be in accordance to the SLA stipulations. The supplier should provide a replacement equipment to cater for any contingency. Warranty shall include free maintenance of the whole equipment supplied including free replacement of parts. The defects, if any shall be attended to on immediate basis.

6.4.7.4 Loan Equipment: Should damages occur to equipment due to circumstances not covered under warranty for example lightning strikes, the following will apply:

- Contractor will replace equipment as stated under the warranty.
- Contractor will investigate and hand in a report to verify the equipment failure and cause.
- If repairable, a quote must be given for said repairs. CoT will either supply an order for the repairing of the equipment or for new equipment depending on the repair costs.
- If non-repairable, CoT will supply an order for new equipment based on the prices in this document.
- The equipment provided under the warranty will therefore become loan equipment until the repaired or new equipment is installed and commissioned.

6.4.7.5 Pre-Delivery Inspection: CoT's representative shall have the right to inspect or to test the items to confirm their conformity to the ordered specifications. The supplier shall provide all reasonable facilities and assistance to the inspector at no charge to CoT. In case any inspected or tested goods fail to conform to the specifications, CoT may reject them and supplier shall either replace the rejected goods or make all alterations necessary to meet specification required free of cost to CoT.

6.4.7.6 Verification Process: The Project Manager (CoT) shall, during the progress of the delivery of the supplies and before the supplies are taken over, have the power to order or decide:

a) the removal from the place of acceptance, within such time or times as may be specified in the order, of any supplies which, in the opinion of the Project Manager, are not in accordance with the contract;
b) their replacement with proper and suitable supplies;
c) the removal and proper re-installation, notwithstanding any previous test thereof or interim payment therefor, of any installation which in respect of materials, workmanship or design for which the Contractor is responsible, is not, in the opinion of the Project Manager, in accordance with the contract;
d) that any work done or goods supplied or materials used by the Contractor is or are not in accordance with the contract, or that the supplies or any portion thereof do not fulfil the requirements of the contract.

The Contractor shall, with all speed and at his own expense, make good the defects so specified. If the Contractor does not comply with such order, the Contracting Authority shall be entitled to employ other persons to carry out the orders and all expenses consequent thereon or incidental thereto shall be deducted by the Contracting Authority from any monies due or which may become due to the Contractor.

Supplies which are not of the required quality shall be rejected. A special mark may be applied to the rejected supplies. This shall not be such as to alter them or affect their commercial value. Rejected supplies shall be removed by the Contractor from the place of acceptance, if the Project Manager so requires, within a period which the Project Manager shall specify, failing which they shall be removed as of right at the expense and risk of the Contractor. Any works incorporating rejected materials shall be rejected.

6.4.7.7 Final Inspection: Final inspection will take place at the location(s) of delivery. The inspection will test the completed installations and integration and the proper operation confirming the technical validity of the equipment and documents with the design specification documents and quality standards prescribed. This final inspection will be the basis for provisional acceptance. A letter will be sent to the contractor at least one week before the final inspection will take place.

6.4.7.8 Administrative: The Contractor shall comply with administrative orders given by the Contract Manager (Relevant Deputy Director in Council). Where the Contractor considers that the requirement of an administrative order goes beyond the scope of the contract, he shall, on pain of breach of contract, notify the Project Manager (Relevant Deputy Director in Council) thereof, giving his reasons, within 30 days of receipt of the order. Execution of the administrative order shall not be suspended because of this notice.

6.4.7.9 Implementation Methodology/Programme: The Contractor shall submit a programme of implementation of the contract for the approval of the Project Manager. The programme shall contain at least the following:

- the order in which the Contractor proposes to perform the contract including design, manufacture, delivery to place of receipt, installation, testing and commissioning.
- detailed schedule of all activities and sub activities, allowing weekly and monthly reports to be extracted.
- job description for every activity or milestone.
- define delivery contents and time.
- define final delivery and final operating time.
- the deadlines for submission and approval of the drawings;
- a general description of the methods which the Contractor proposes to adopt for executing the contract; and
- such further details and information as the Project Manager may reasonably require.

No material alteration to the programme shall be made without the approval of the Project Manager. If, however, the progress of the implementation of the contract does not conform to the programme, the Project Manager may instruct the Contractor to revise the programme and submit the revised programme for approval.

Approved drawings, documents, samples and models shall be signed or otherwise identified by the Project Manager and may only be departed from on the Project Manager's instructions. The approval of the drawings, documents, samples or models by the Project Manager shall not relieve the Contractor from any of his obligations under the contract.

6.4.7.10 Assets: All equipment should have a solidly fixed metallic type (or similar) approved label, size 75 X35 mm, model and serial number.

6.4.7.11 Electricity: Nominal voltage in South-Africa is 220/230V single phase. The quality and stability of the supplied current may undergo fluctuations of more than ±10%. All supplied hardware must operate on a 220 V ± 20 V, 50 Hz ± 0.5 Hz, power supply and be suitable for direct connection to the standard power outlets in South Africa.

6.4.7.12 Final Acceptance: Upon expiry of the warranty period or, where there is more than one such period, upon expiry of the latest period, and when all defects or damage have been rectified, the Project Manager shall issue the Contractor a final acceptance certificate, with a copy to the Contracting Authority, stating the date on which the Contractor completed his obligations under the contract to the Project Manager's satisfaction. The final acceptance certificate shall be issued by the Project Manager within 30 days of the expiry of the warranty period or as soon as any repairs ordered have been completed to the satisfaction of the Project Manager.

The contract shall not be considered to have been performed in full until the final acceptance certificate has been signed or is deemed to have been signed by the Project Manager.

Notwithstanding the issue of the final acceptance certificate, the Contractor and the Contracting Authority shall remain liable for the fulfilment of any obligation incurred under the contract prior to the issue of the final acceptance certificate which remains unperformed at the time that final acceptance certificate is issued. The nature and extent of any such obligation shall be determined by reference to the provisions of the contract.

6.4.7.13 Inspection And Testing: The Contractor shall ensure that the supplies are delivered to the place of acceptance in time to allow the Project Manager to proceed with acceptance of the supplies.

The Project Manager shall be entitled, from time to time, to inspect, examine, measure and test the components, materials and workmanship, and check the progress of preparation, fabrication or manufacture of anything being prepared, fabricated or manufactured for delivery under the contract, in order to establish whether the components, materials and workmanship are of the requisite quality and quantity. This shall take place at the place of manufacture, fabrication, preparation or at the place of acceptance.

For the purposes of such tests and inspections, the Contractor shall:
a) provide the Project Manager, temporarily and free of charge, with such assistance, test samples or parts, machines, equipment, tools, labour, materials, drawings and production data as are normally required for inspection and testing;
b) agree, with the Project Manager, the time and place for tests;
c) give the Project Manager access at all reasonable times to the place where the tests are to be carried out.

If the Project Manager is not present on the date agreed for tests, the Contractor may, unless otherwise instructed by the Project Manager, proceed with the tests, which shall be deemed to have been made in the Project Manager's presence. The Contractor shall immediately send duly certified copies of the test results to the Project Manager, who shall, if he has not attended the test, be bound by the test results.
When components and materials have passed the above-mentioned tests, the Project Manager shall notify the Contractor or endorse the Contractor's certificate to that effect.

If the Project Manager and the Contractor disagree on the test results, each shall state his views to the other within 15 days of such disagreement. The Project Manager or the Contractor may require such tests to be repeated on the same terms and conditions or, if either Party so requests, by an expert selected by common consent. All test reports shall be submitted to the Project Manager, who shall communicate the results of these tests without delay to the Contractor. The results of retesting shall be conclusive. The cost of retesting shall be borne by the Party whose views are proved wrong by the retesting.

In the performance of their duties, the Project Manager and any person authorised by him shall not disclose to unauthorised persons information concerning the undertaking's methods of manufacture and operation obtained through inspection and testing.

6.4.7.14 Suspension: The Project Manager may, by administrative order, at any time, instruct the Contractor to suspend:
a) the manufacture of the supplies; or
b) the delivery of supplies to the place of acceptance at the time specified for delivery in the implementation programme or, if no time specified, at the time appropriate for it to be delivered; or
c) the installation of the supplies which have been delivered to the place of acceptance.

The Contractor shall, during suspension, protect and secure the supplies affected at the Contractor's warehouse or elsewhere, against any deterioration, loss or damage to the extent possible and as instructed by the Project Manager, even if supplies have been delivered to the place of acceptance in accordance with the contract but their installation has been suspended by the Project Manager.

The Contractor shall not be paid any additional expenses if the suspension is:
a) necessary by reason of abnormal climatic or other environmental conditions at the place of acceptance
b) necessary owing to some default of the Contractor
c) necessary for the safety or the proper execution of the contract or any part thereof insofar as such necessity does not arise from any act or default by the Project Manager or the Contracting Authority.

If the period of suspension exceeds 180 days, and the suspension is not due to the Contractor's default, the Contractor may, by notice to the Project Manager, request to proceed with the supplies within 30 days, or terminate the contract.

6.5 Standards, Norms, Compliance

6.5.1 Standards: The equipment must be compliant with European and US standards such as electrical security standards: (Please indicate whether the proposed equipment will comply with the standards and specifications below, this is mandatory)

The equipment must be compliant with European and US standards such as electrical security standards:	**Comply**	**Non-Comply**
• EN - 60950 (IEC950)		
• EN - 50082-x		
• EN – 5502		
• UL/CSA		
• FCC/IC PART 68 AND CS-03		
• NFC - OF IT - 60950 and NFC - OF IT – 41003		
The hardware of the proposed system must be compliant with the current European directive concerning the Restriction of Hazardous Substances (RoHS) concerning electrical and electronic equipment.		
Switches provided must comply with the national and local codes applicable to this type of equipment and installation. The following list may not be exhaustive at the time of installation:		
• Declaration of Conformity: CE Mark This equipment is in compliance with the essential requirements and other provisions of Directive 73/23/EEC and 89/336/EEC as		

amended by Directive 93/68/EEC.		
• Waste Electrical and Electronic Equipment (WEEE) Statement The product at end of life is subject to separate collection and treatment in the EU Member States, Norway and Switzerland. Treatment applied at end of life of the product in these countries shall comply with the applicable national laws implementing directive 2002/96EC on waste electrical and electronic equipment (WEEE).		
• Standards Compliance The product bears the CE mark. In addition it is in compliance with the following other safety and EMC standards. Note: EN = European Norm, IEC = International Electro-technical Commission		
All hardware-switching platforms should comply with Class A standards for digital devices per AS/NZS 3548, CISPR 22, and EN55022, the FCC Part 15, ICES-003, and VCCI standards. Modules with copper connectors should meet Class A requirements using unshielded (UTP) cables, but meet Class B requirements using shielded (STP) cables: • Safety Standards		
o Australia: c-Tick for Australia		
o AS/NZS TS-001 and 60950; 2000, Australia		
o Canada: CAN/CSA-C22.2 No. 60950-00		
o CB Certification PBR IEC 950		
o CB Certification (per IEC 60950)		
o CB per EN 60825-1 & EN 60825-2 (Safety Laser Evaluation)		
o CDRH for UL (Safety Laser Evaluation)		
o China: China CCC		
o C-Tick for Australia		
o EN60950-1; 2001; all national deviations		
o EN60950-1; 2001; all deviations		
o EN60825-1 Laser		
o EN60825-2 Laser		
o Germany: TUV, UL-GS Mark for Germany		
o IEC 60950-1; 2001; all national deviations		
o NOM-019 SCFI, Mexico		
o TS 001		
o UL-AR (Argentina)		
o US: UL 60950		

o EMC Standards		
o AS/NZS 3548 Class A		
o BSMI Class A		
o CCC (China) Class A		
o CE marking for European countries Class A		
o CISPR 22 Class A		
o EN 55022 Class A		
o EN 55024: 1998 (Immunity Standard)		
o EN 50082-1		
o EN 61000-3-2: 2000		
o EN 61000-3-3:1995		
o EN 61000-4-2: 1995		
o EN 61000-4-3: 1995		
o EN 61000-4-4: 1995		
o EN 61000-4-5: 1995 (Surge Level 4)		
o EN 61000-4-6: 1996		
o EN 61000-4-8: 1993		
o ENC 1000-4-11: 1994		
o FCC Part 15 Class A		
o ICES-003 Class A		
o IEEE 802.3: Hi-Pot Test (1,500V or 2,250VDC on all Ethernet ports)		
o VCCI Class A		
o Safety and Environmental Standards		
o ETS 300 019 Storage Class 1.1		
o ETS 300 019 Transportation Class 2.3		
o ETS 300 019 Stationary Use Class 3.1		
Switches should comply with Class-A standards for digital devices per the FCC Part 15, ICES-003, EN 55022, CISPR 22, AS/NZS 3548, and VCCI standards. Modules with copper connectors should meet Class-A requirements using unshielded (UTP) cables.		

6.5.2 Network Firewall services

A firewall is a set of related services, located at a network gateway server that protects the resources of a private network from users from other outside networks. Traditional network firewall services use IP-based access/deny policies, while more recent technologies allow deep packet inspection, being able to enforce policies on acceptable application usage and detection of malicious out-of-band transactions.

The service is made up of various service “layers”, with options according to customer requirements:

- Range of security appliances (firewalls) and associated software / applications, from leading security vendors, provided as SP Equipment
- Fault management; 24x7 customer helpdesks, on-site maintenance and proactive service monitoring
- Configuration management; application patches and changes to customer security policy
- Service reports; service availability, security-related events
- Security consultancy to assist the customer in defining their security requirements (covered by cross-functional services SOW)
    - Project managed service installation and service commissioning (covered by cross-functional services SOW)

The optional features provided within the service include (where applicable):

- High availability (resilient) designs
- IPSec VPNs
- De-Militarized Zones (DMZs)
- Threat mitigation

6.5.3 Web Access Security Services

The Web Access Security Service (WAS) provides protection and optimization on a customer site, typically controlling Web site access (permitted URLs and Virus protection) and/or more effective use of available bandwidth (usually the Internet). The service is made up of various service “layers”, with options according to Customer requirements.

- A range of security appliances (proxies) and associated software / applications, from leading Security vendors
- Security consultancy to assist the customer in defining their security requirements
- Project managed service installation and service commissioning
- Fault management; 24/7 Customer helpdesks, on-site maintenance and proactive service monitoring
- Configuration management; application patches and changes to customer security policy
- Service reports; service availability, security-related events

The optional features provided within the service include (where applicable);

- URL filtering
- Antivirus / Antispyware
- High availability (resilient) designs
- SSL control
- Instant messaging control
- Media streaming control
- User groups
- Bandwidth optimization

7 WIDE PRODUCT PORTFOLIO

7.1 System management

In the management part, the tendered must have products for IP address management, network infrastructure management and service level management:	**Comply**	**Non-Comply**
• Scalable and comprehensive system with a friendly user interface and clear reporting possibilities;		
• Comprehensive fault management allowing critical faults to be forwarded by e-mail or any other application for timely restoration of the network to sustain continuous business;		
• For Wi-Fi network, display graphical representation of the radio frequency coverage of the network, locate Wi-Fi devices, provides special troubleshooting tools and may more;		
• Views of the actual status of the service levels agreed in a company between IT and business (service level management reporting, not only the network infrastructure performance, but holistic reporting on network infrastructure, IP Telephony, call centers, central applications and even workstation performance;		

7.2 Network Management

In the network infrastructure part the SP must have products for Local Area Network, Wireless Local Area Networks and Wide Area Networks. All these products must be ready to support converging of networks, applications and technology such as telephony, data transmission and video communication:	**Comply**	**Non-Comply**
• Chassis based and stackable Ethernet switches;		
• Scale networks from 10 to 10,000's of Ethernet ports varying in speed from 10 Megabit per second through 10 Gigabit per second.		
• Use very low power (for reduced operational cost) and are manageable from a central management system.		
• Enable a resilient network infrastructure to avoid costs of business interruption caused by failures of the network.		
• For Wi-Fi switches and Wi-Fi access points, must scale from 4 to 1000's of access points across branches and even towards home workers. To keep cost of deployment low this, centrally managed, Wi-Fi infrastructure solution must run over existing LANs, automatically calibrates the radio's used for communication with Wi-Fi devices and does not need local configuration of access points. The wireless network solution must have been designed to enable a resilient wireless infrastructure to avoid costs of business interruption caused by		

failures of the network. Standard based wireless security must be fully supported to avoid unsolicited access of the network which can reach outside the company's premises due to the nature of radio signals.		
• In the Wide Area Network, branch offices can be equipped with the Unified Services Gateway router for access of central and Internet resources. Backbones in Wide Area Networks can be built with the Service Router and the Ethernet Service Switch. Both the SR and ESS must be high capacity switches to deploy MPLS networks. Virtualization of those networks to support multiple division or segregated applications should be realized by Virtual Private LAN Switching (VPLS). VPLS is a virtualization technique that does not force networks or applications into high costs by changing IP address schemes. Neither does VPLS require costly skills to maintain compared to well-known Virtual Private Routed Network (VPRN) technology requiring the complexity of Border Gateway Protocol (BGP).		
Products:		
• WLAN enforcing Network Access Control;		
• Gatekeeper for Host Integrity Check (HIC);		
• A firewall able to operate in stealth mode;		
• Unified Threat Management (UTM).		

7.3 LOCAL AREA NETWORK

The LAN product line must help:	**Comply**	**Non-Comply**
• Decrease TCO;		
• Lowest price / street price;		
• Low energy consumption, reduces energy bill especially for chassis based LAN switches;		
• Consistent element management from FE stackable to 10 GigE chassis to reduce admin training cost;		
• Management system to reduce maintenance costs.		
The proposed product line must have embedded security avoid costs when network is attacked or important information could be exposed		

7.4 EXPECTED BENEFITS FOR IP TELEPHONY

Reduced costs: Converging voice and data onto a single network can reduce cabling, network, maintenance and equipment costs.

Operational efficiency: Secure reliable infrastructure and enhanced communications can help the business operate more efficiently.

Improved productivity: Shared real-time access to applications enhances employee productivity as staff can collaborate online wherever they are.
Enhanced customer service: A managed infrastructure enables to run applications to further enhance the customer contact strategy.
Maintain core business focus: Tenderer manages the network and the site equipment so that the organization is free to concentrate on their core business.
Business continuity: Tenderer's quality of service and Service Level Agreements allow implementing convergence while maintaining business continuity.

7.5 EXPECTED BENEFITS FOR UNIFIED COMMUNICATIONS AND COLLABORATION

Unified Communications Service should offer the following benefits:	**Comply**	**Non-Comply**
• Improved accessibility of information and experts throughout the enterprise The easier it is for workers and customers to access information and experts, the better they can resolve issues and complete tasks		
• Flexible workgroups, which enable faster problem resolution Collaboration among workers accelerates decision-making and provides a faster remedy to issues that arise		
• Better value from existing internal applications Employees use multiple forms of communication but often do not fully use the tools provided due to their complexity. As user interfaces becomes simpler, employees will better use tools provided to them		
• Faster response to customer requests Customers feel that the Buyer is looking out for their best interests with an immediate response to their problems		
• Avoidance of project delays due to communication silos By providing a fully integrated experience across all applications, workers can more readily respond to critical issues		
• Greater control over work schedules and timeline adherence Business can eliminate major obstructions that inhibit collaboration through real-time connectivity among employees		
• Effective communication Beyond replacing a traditional channel for contacting employees,		

Unified Communications applications also enable smarter communication. Employees can consult the best method for reaching co-workers before even initiating contact, thereby improving the efficiency in their interactions with others irrespective of location		
• Time savings and cost savings Real-world users' experiences indicate that these applications can provide both employee productivity benefits and direct monetary savings.		
• The level of Unified Communication application benefits increases with deployment scope The more employees within an organization that are equipped with a Unified Communication application, the greater the overall return.		
• Greater flexibility enabled by media independence Because the protocols (that is, IP and SIP) are neutral to type of media used, it unifies dissimilar applications onto the same platform and simplifies the user interface so that workers can easily communicate with others any time and any place with any device		
• Improved co-worker communication interfaces Unified Communications introduces new capabilities not found in previous applications. These include mixed media that seamlessly blend collaborative and communication applications, and advanced desktop capabilities for launching applications through intuitive PC interfaces with presence indicators		
• Corporate accountability and transparency Logging and archiving of Buyer related messages (verbal and text) can assist in the enterprise meeting its regulatory requirements (for example Sarbanes-Oxley, Basel II)		
• Reduce Human Latency Simplifying the process of having to wait for human intervention around a business process—this helps drive business effectiveness, efficiency and profitability		
• Accelerate Delivery Accelerate the delivery of critical information to the right person with the right skills, at the right time to solve problems quickly		

7.6 HIGH SCALABILITY PRODUCTS

The SP's proposed system must be capable of interconnecting dozens trough 10 000's of systems and users in Local Area Networks and Wireless Local Area Networks.

The SP product line for LANs, starts with 24 ports stackable Ethernet Switches, through stackable Gigabit switches to high capacity modular10 Gigabit Ethernet switches. These switches scale to be deployed in networks from 24 to 10 000s of ports.

All switch types should share the same common set of management features from the command line through Simple Network Management protocol (SNMP) to the most modern Web based configuration possibilities. Whether it is a 24 port Fast Ethernet switch or a 96 port 10 Gigabit modular switch deployment is the same, saving money in educating maintenance personnel. The LAN switches can be of choice with Power over Ethernet providing power to digital cameras', IP phones, wireless access points and more, fitting the strategy of converging networks to reduce cost by eliminating the need to maintain separate video and telephony networks.

The SP product line for Wi-Fi must allow deploying a single wireless access point for a home worker through tens of access points in small and large branches to thousands of access points in large offices. Control of these access points must be through WLAN switches ranging from small switches with embedded access points to a chassis based switch supporting 1000's of wireless access points. This wireless LAN product must support IP telephony alongside other applications, making it ideal for a cost saving converged environment with mobility needs.

7.7 BUSINESS CONTINUITY

Availability of the network infrastructure is important for the SP to maintain business operational. Beyond the well-known mechanisms to provide resiliency in networks SP must offer innovative resilience protocols to avoid cost of inoperative business due to network failures.

The switch product line must offer protection mechanisms for backbones (Ethernet Ring Protection) and access switches (Dual Home Link) where the users connect to the network. The time to recover from a link failure in backbones and to access switches must be reduced below 50 ms. Recovery of connections within 50 ms allows real-time communications like video and telephony to continue without notice to the end users. Higher recovery times could impact the communication thereby frustrating the business processes.

Mechanism to improve availability in wireless networks such as Adaptive Radio Management must be proposed. In case there is a failure of the switch WLAN access point, adjacent access points have the ability to increase transmission power to maintain coverage of the office space. Adaptive radio Management allows the end users to continue business at their preferred location.

7.8 ACCESS SECURITY AND NETWORK AUTHORIZATION

Access security and network authorization is important to prevent unsolicited access to network resources in general, avoiding costs by preventing digital attacks or information theft and unauthorized access to specific resources in the network by specific users or devices.
The SP's LAN switches and Wireless LAN solution must have access authentication and network authorization features embedded. They allow end users as well as end systems to log on to the network. By using standards based authentication, there is no need to invest in licenses for end systems.
In addition a database is required to store user and system credentials. The switch solutions should support the RADIUS protocol to access this database.
Next to authentication, the switched must be capable of authorizing end users and end systems into segregated, virtual parts of the network. By simply adding a profile parameter in the data base entry of the end-user or end-system the SP solution upon authentication only grants access to a specific part of the network. By deploying profiles it is even possible to limit the maximum bandwidth of a user or a system and to enforce a check of the integrity of the system entering the network.
In short, the intelligence should be in the network equipment. The security relies on standards based protocols and software implementations and does not need any additional SP appliance or software installed in the network or its end systems.
To effectively re-use existing investment in security technology, this authentication, authorization and system compliance checking mechanisms must be based on open standards. This security should be deployed without installing any additional software on user's or visitor's workstations, allowing maintaining control without the need to invest and maintain new software distribution services.

7.9 WIRELESS LOCAL AREA NETWORK (WLAN)

Highlights:	**Comply**	**Non-Comply**
• Security:		
o Support of all standardized Wi-Fi access security;		
o User Network Profiling (authorization);		
o (Unique) Built in Firewall to separate the wireless from the wired environment;		
• Centralized management:		
o Location tracking supported by API;		
• Support and advanced IP telephony:		
o SIP and SP proprietary;		

o Call Admission Control;		
o Battery saving features;		
• Easy deployment:		
o Access point Automatic channel assignment;		
o Centralized set-up;		
• Availability:		
o Redundant WLAN switches;		
o Automatic coverage repair when an AP fails;		
• Home working secured and easy to deploy solution (refer slide 12);		
• Meshing;		
o Support of Wireless meshing;		
• Outdoor;		
• Hardened Access Points.		

7.10 Network Management

Network Management plays a very important role in optimizing the costs of maintaining a network. The Network Management System (NMS) is the central platform for managing a Local Area Network. It will display the network topology, including all links and elements and their status. The Network Management System must adhere to FCAPS (Fault, Configuration, Administration, Performance and Security) management.

In addition to the previous described fault management must be able to perform the following tasks:	**Comply**	**Non-Comply**
• Configuration management: to be able to do on-line or scheduled configuration of multiple switches at the same time to avoid spending time adapting each switch individually.		
• Administration management: to secure access to the Switch's controls by defining user id's, passwords and encryption but also to be able to backup and restore switch configurations.		
• Performance management: to collect and store statistics about network and switch utilization to be able to justify investment in future switch equipment.		
• Security management: to centrally set-up access profiles for end-users and end systems, as well as setting-up quarantine actions for end systems violating security policies using Quarantine Manager.		

7.11 ARCHITECTURE: CENTRALIZED IP TELEPHONY AND UNIFIED COMMUNICATIONS INFRASTRUCTURE

Deploy a centralized IP telephony infrastructure to lower operation costs by regrouping resources:	**Comply**	**Non-Comply**
• Centralized IP communications;		
• Centralized management including performance management;		
• Centralize servers in data center;		
• Minimize number of required servers to optimize operation, maintenance and upgrade costs: e.g. Collaboration tool (minimize the quantity of server and maximize users and access).		
Secure solution:		
• Redundancy;		
• Backup solution for remote sites;		
• Encryption (signaling only and/or signaling & media);		
• Smooth migration from existing solution to the targeted solution.		
SIP openness:		
• Embedded SIP controller to lower the TCO (Total Cost of Ownership);		
• Communication services and centralized device management are open to third party SIP phones (hospitality phones, elevator and gate phones, etc.);		
• Full featured survivability with Passive Communication Server,		

7.12 WAN INFRASTRUCTURE

The request is to provide products for Wide Area Network (WAN) connectivity. Buyer will prefer service gateways that in addition to routing all voice and data traffic between networks securely, efficiently and economically, can provide value added services in a single network element.

It is not expected that a single unit will provide all of the requested features. The objective is to ensure that the option exists to choose the correct product as a function of the preferred connectivity choice and density.

To ensure interoperability, the service gateway(s) must provide a complete robust end-to-end solution to handle legacy voice, VoIP, security, IP transport and element management tools.

In addition to the routing features, the service gateway should be able to house applications for traffic treatment such as firewalls, security policies, or VPN management.

If multiple services are added, scalability and performance must be maintained. The addition of applications for data treatment should impact performance minimally or not at all. The Tenderer should provide service gateway features that are easy to install and configure according to network requirements.

7.13 AVAILABILITY

The service gateway can be either a modular chassis-based hardware (allowing flexibility and scalability) or of a fixed configuration. Where possible in-service upgrades and configuration changes due to a fault in one service should cause minimal or no disruption to other services in operation.

Wherever possible the hardware must be “plug and play”. The insertion and removal of the cards on a chassis based system should be detected dynamically and configured accordingly to enable service continuity during hardware upgrades.

It must be possible to monitor the state (including the environmental status) of each card within the chassis and alarms must be generated if corrective actions are required.

Modular software architecture enabling administrators the capability to perform always-live operating system upgrades, to start or stop individual software modules with no disruption to existing traffic flows, install real-time services without traffic disruption and to allow the insulation of the system from the failure of any service within the system.

Built-in architectural redundancy:	**Comply**	**Non-Comply**
• Redundant interfaces (WAN)		
• Redundant power		
• Bonding Techniques including MLPPP and MFR		
• VRRP		
To ensure connectivity the solution should provide a wide selection of connectivity options including:	**Comply**	**Non-Comply**
• T1/E1		
• V.35/X.21		
• ADSL		
• ISDN		
• Gig Ethernet		

7.14 SECURITY

To ensure secure communications between and through the service gateway, the solution offered must support a comprehensive set of security services and protocols.

To ensure secure communications between and through the	**Comply**	**Non-**

service gateway, the solution offered must support a comprehensive set of security services and protocols including:		**Comply**
• Firewall: Network attack detection, DoS & DDoS protection, NAT, ALG & ACL capabilities, Common Classifier and 128k sessions		
• VPN: IPSec NAT traversal with DES,3DES, AES, PKI, NAT traversal, minimum of 2.5K VPN tunnels		
• IDS/IPS: intrusion detection & prevention with dynamic signature updates and Group-based IDS/IPS		
• VoIP: VoIP transport, SIP application layer gateway (ALG), Dynamic pinhole mgmt and QoS Strict priority queuing, DSCP classification & marking		
• SSL		
• SSH		
• AAA: Radius and TACACS+		
• Antivirus		

7.15 ROUTING, SWITCHING AND QOS

To ensure interoperability, the solution offered must be a multi-platform router that can support a comprehensive set of network services and protocols including:	**Comply**	**Non-Comply**
• Static & dynamic routing		
• Routing Protocols: RIP v1, RIP v2, OSPF, BGP		
• Policy Based Routing		
• VRF-CE		
• Hierarchical QoS: 16 queues available per logical interface with priority, total 16^4 queues, WRED		
• Switching: VLANs, PVSTP, bridging		
• DHCP: relay		
• DNS: DNS Proxy		
• 10/100/1000 Mbps Ethernet switching		
• LAN Switching: 802.1Q VLANs, STP, PVST+		

7.16 NETWORK SERVICES

The service gateway must provide a flexible and extensible architecture enabling new service additions to the system. In order to accomplish this, the service gateway must provide dedicated	**Comply**	**Non-Comply**

CPU processing for these applications or services along with an embedded disk drive.		
• Application engine to provide 3rd party application installation on the service gateway		
• Minimum of 1 180G hard disk drive		
• Minimum standard memory compliment of 512M with the ability to grow this to 1G		
• Services to include:		
o DHCP Server		
o DNS Server		
o Web Caching		
o WAN Optimization/Application Acceleration		
o Print Services		
o IP-PBX		
o WiFi Controller		
o Partner Custom Application		

7.17 MANAGEABILITY

The Service gateway should be remotely accessible for authorized administrators to perform:	**Comply**	**Non-Comply**
• Monitoring		
• Service provisioning with wizards for easy configurations		
• Configuration management		
• Dynamic software upgrades without reboots		
To ensure the remote management capabilities, the service gateway must include the following features:		
• Access Interfaces: console port, Universal Modem, USB		
• User Interfaces: CLI, WebView (HTTP, HTTPS)		
• Management Protocols: SNMP v1/v2		
• NetConf compliant XML API		
• Syslog forwarding		
• Standard & custom MIBs		

The following performance figures must be used as a guideline for requirements are listed in the following table. These figures will be used as an evaluation criteria.

		Comply	Non-Comply
Packet forward rate performance	930 kbps (64 byte pkts)		
	1.8 Gbps (> 512 byte pkts) bidirectional		
Max. number of BGP peers	200		
Max. number of VLANs	4096		
Firewall performance	1 Gbps		
3DES performance	80 Mbps		
AES performance	200 Mbps		
L4/7 inspection performance	100 Mbps		
Concurrent sessions (firewall)	128,000		
Max. concurrent VPN tunnels	2,500		
No. of policies	5,000		

7.18 LAN INFRASTRUCTURE

7.18.1 LAN DATA CENTRE

The request is for LAN Data Centre switching. In general terms, the system implementation at this level requires a large investment on the part of the client. In order to protect this investment, the hardware and software must be economically future proofed to ensure continued usability for the duration of the expected lifetime of the network. Please detail projected ROI information.

The switches must meet with the following general requirements:	Comply	Non-Comply
• Large Switching capacity of 40Gbit ports		
• High 10GigE port density		
• Capacity for 100Gbit ports		
• Advanced security access		
• Advanced QoS features (Prioritization, Filtering, Server Load Balancing, ...)		
• Support of Data Centre Bridging (SPB)		
• Support Ethernet Ring Protection (ERP)		
Lossless Ethernet:		
o PFC o ETS		

o DCBX		
• Wire-rate processing for IPv4/IPv6		
• Non-Blocking Switch architecture		
• Fully distributed architecture without single point of failure		
• Support of MC-LAG or Virtual Chassis		
• Virtual Machine (VM) management and provisioning		
• FCoE, FIP Snooping		
• Full support for unicast and multicast applications such as voice-over-video collaboration		
• Meet Restriction on Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive.		

7.18.2 Availability

To ensure full availability in the LAN data centre, the proposal must comply with the features listed in this section.	**Comply**	**Non-Comply**
10 Gigabit Ethernet port density & performance should offer at least 256 wire rate 10-Gigabit Ethernet ports on the same chassis-based system.		
The chassis must be able to provide 40-Gigabit and future 100-Gigabit Ethernet.		
The chassis must be able to support up to 64 40Gbit ports at wire speed		
The Tenderer must provide the highest possible availability to support the demands of IP communications and mission-critical applications. Providing the highest availability to the enterprise ensuring that users have constant access to resources and services at all times.		
To ensure the highest levels of availability, the Tenderer must provide a distributed architecture, where each Network Infrastructure autonomously supports functions, such as:		
• Source learning		
• Spanning Tree functions		
• Shortest Path Bridging		
• L2/L3 forwarding		
The switch must provide a wide range of availability features such as:		

• Redundant management,		
• Redundant switching fabric/fault tolerant backplane,		
• Redundant power supplies		
• Link aggregation including 10/40 Gigabit Ethernet that can be configured across physical switch boundaries.		
To remove single points of failure, and minimizes downtime, reduce operational complexity & cost and increase availability for mission-critical applications the switch should include the following features:		
• Redundant modules and sub-components (CMMs, fans and PSUs)		
• Hot swappable modules and sub-components (Network Infrastructures, CMMs, and fan trays, PSUs, SFPs and XFPs)		
• Hitless loading of optional software (routing / security), without re-booting		
• Image rollback to automatically re-load previous configurations and software versions		
• Software upgrades must be applied without the need of a chassis reboot		
• Multiple configurations must be supported to allow different configurations to be loaded from the chassis flash memory		
To provide a cost effective, highly available, scalable and re-configurable network, it would be advantageous to provide a modular based chassis that can be combined with other switches provided by the Tenderer.		
The Tenderer must provide switches that ensure continuity by providing the following capabilities: Hot Swap, Management Module Fail-over, Power Monitoring, and Redundancy. There must be:		
• No single point of failure and a sub-second fail-over in its redundant configuration		
• Redundant Management & Redundant Switch Fabric		
• Hot swappable components & hot insertable support: switch modules, SFPs/SFP+		
• Redundant Power Supplies (Redundant 1:1 power) & Redundant 1: 1 PoE power provided by the PoE P/S.		
The Tenderer must provide a solution that guarantees Spanning Tree robustness (Single or Multiple STP options): IEEE 802.1D		

(STP) (802.1D spanning tree for loop free topology and link redundancy) and IEEE 802.1w-Rapid Reconfiguration of Spanning Tree.		
It must provide:	**Comply**	**Non-Comply**
• Ring topology Spanning Tree algorithm optimized for ring topology to provide less than 100ms convergence time		
• IEEE 802.1s multiple spanning tree and per-VLAN spanning tree (1x1)		
• Fast forwarding mode on user ports to bypass 30-second delay for spanning tree		
• Preventing unauthorized spanning-tree enabled attached bridges from operating		
• BPDU blocking – automatically shuts down switch ports being used as user ports if a spanning tree BPDU packet is seen, preventing unauthorized spanning-tree enabled attached bridges from operating.		
• Priority queues: eight hardware-based queues per port		
The solution must support:		
• Dynamic link aggregation IEEE 802.3ad (to support automatic configuration of link aggregates with other switches) with resilient uplink capabilities		
• Static link aggregation (that supports automatic configuration of link aggregates with other switches)		
To guarantee hardware resiliency, the proposed product must be resistant to physical and excessive temperature variations. The solution should include:		
• Thermal protection/shutdown for the chassis		
• Hardware monitoring, temperature monitoring, and power monitoring & management		
• Short “cold” and “warm” boot times		
• Built-in security and device hardening		
Network and link resiliency are important parts of network availability and the proposed product must support advanced routing, load sharing, and mechanisms for fast reconfiguration of links between switches, servers, and other network devices.		
The Tenderer must provide a solution that can support VRRP (Virtual Router Redundancy Protocol), OSPF ECMP (Equal Cost Multipath Protocol) and OSPF graceful restart.		

7.18.3 Security

To provide high security in the LAN data center, the proposal must comply with the features listed in this section.

The Tenderer must supply applications, embedded or otherwise, to provide proactive, network-wide security through auto-sense authentication that prevents unauthorized network access.

The solution must provide reactive security by automatically handling malicious attacks by taking intrusion information and dynamically reconfiguring the network to contain the attack.

The switch must support a distributed security approach, enhance emerging security technologies, and help secure the LAN data center using proactive and reactive strategies.

The Tenderer must include a host integrity check solution to ensure that, prior to allowing network entry, attached devices are running administrator defined credentials such as:

- Operating system patch level
- Local firewall is activated
- Antivirus version is up to date.

The host integrity check solution must be able to automatically move hosts that pass inspection dynamically into their proper VLAN based on the user, or move them into a protected environment where they could maintain limited access to network resources for remediation.

The offer must include support for a quarantine engine and support Intrusion Detection Systems (IDS), so that the network can automatically detect attacks and take protective action such as:

- Limiting the traffic
- Placing the device in quarantine

To secure the LAN data center, the switches must support Access control lists (ACLs) to filter out undesired communication.

The Tenderer must offer a switch which includes an authenticated VLAN feature to provide the ability to authenticate by user with username and password and then dynamically place the user into the proper VLAN IEEE 802.1x, a standards-based approach to network access is an effective way of challenging a user by requesting a username and password before allowing access the network

The solution should support learned port security that allows only pre-authorized network devices to communicate with each other. This provides protection against rogue devices such as WLAN access points, as well as unsecured and potentially virus infected laptops or PC's.

Switch administration must be secured by encrypting remote management with secure shell (SSHv2) for Telnet, Secure Socket Layer (SSL) for web-based management and SNMPv3 for network wide management systems. Additionally all administrators must be centrally

authenticated through a RADIUS, TACACS+, LDAP or ACE server. A local database can be provided on every switch for administrator authentication.

Multi-layer security enables the building of sophisticated hardware and software-based solutions that can be integrated with policy-based management and other technologies such as smart cards, PKI, and biometrics for enhanced security implementations. The switch must provide multi-layer security with a range of security features that can be implemented in the wiring closet, the core, and throughout the network.

These include:	**Comply**	**Non-Comply**
• User authentication		
• Virtual local area networks (VLANs)		
• VLAN Quarantine		
• Access control lists (ACLs)		
• Restriction for user ports from sending control traffic (BPDU, RIP, OSPF, BGP)		
• IP source address spoofing prevention		
• Switch access authentication		
• Encryption for secure management (SSHv2 / HTTPS / SNMPv3)		
• Denial of service protection		
To secure management features must be integrated into the architecture including:		
• Authenticated user access,SNMPv3 and SSL for encrypted sessions,		
• Partitioned management for multi-tiered access and granular network administration.		

7.18.4 Intelligence

To be considered intelligent, the product must support the following features:	**Comply**	**Non-Comply**
• The Tenderer must offer a switch based on a design that can distribute processes on the network interfaces and not rely upon a centralized control plane architecture where the management module is responsible for all processing. The distributed design must allow key processes such as Spanning Tree to maintain a fully operational state.		
• Mission critical applications must always be available by supporting advanced Quality of Service (QoS) features.		
The switch must be able to manage the necessary hardware		

queues, intelligence and granularity to:		
• Properly identify (identification is based on layer-1 through layer-4 policy-based features)		
• Mark and prioritize data flows		
The Tenderer must provide switches that provide IPv6 support for wire-rate speeds, classification and tunneling. The performance of the switch must be unaffected whether deploying IPv4, IPv6, or IPv4/IPv6.		
This requirement is essential to address the U.S. Federal government Department of Defense (DoD) requirement that IPv6 be supported for migration by 2008 and addresses other countries requirements including:		
• Ability to connect to the IPv6 backbone		
• Use of IPv6 across public organizations		
• Ability to interconnect the IPv6 “island” through an existing IPv4 network through hardware-based tunneling		
• Ability to control IPv6 flows with extensive QoS/ACL policies		
The Tenderer offer must support hardware-based classification (access control lists (ACLs) and quality of service (QoS), forwarding and management for IPv6.		
The product must support industry classification standards including 802.1Q/p, TOS, and DiffServ, enhanced with complementary features such as extensive QoS mappings and re-tagging of prioritization.		
The proposed product must support:		
• Server Load Balancing (SLB)		
• Residential bridging features: DHCP option-82, DHCP-Snooping and Port Mapping		
• Routing Protocols: IPv4 & IPv6, RIPng, RIPv1/v2 & OSPFv2&v3 & OSPF-ECMP & BGPv4		

7.18.5 Manageability

To manage the data center switches, the proposed products must support the following management features :	**Comply**	**Non-Comply**
The Tenderer must offer management features that can use device information, data traffic or user identity to automatically and dynamically keep the user connected to their resources		

seamlessly regardless of their location on the campus. For example, marketing, finance, operations and sales could all be in the same meeting at a common physical location, yet have secure and dynamic access to their respective network resources.		
The switch should provide all the benefits of managing a truly chassis-based switch including:		
• Simple and quick software upgrades		
• Switch configuration changes		
The switch must include an industry standard command line interface (CLI) to simplify configuration for technical staff.		
The switch must provide installation flexibility by supporting either copper or fiber link connectivity while reducing sparing costs by eliminating the need for separate Gigabit uplink modules.		
The Tenderer must be able to offer management interfaces that:		
• Provide users with commands and user interfaces that can be ergonomically coherent throughout the converged network		
• Can interact with other management systems		
• Can be web-based for user-friendly element management		
• Can use SNMP for third-party network management systems		
The Tenderer must be able to provide management applications and tools that simplify the management of networking devices.		
The application must be able to:		
• Allow managers to monitor network activity		
• Configure and troubleshoot each device		
• Manage an entire network from a single platform		
• Offer network-wide visibility,		
• Element management, and VLAN management		
• Manage policy-based QoS,		
• Have centralized management of secure switch access		
• Quarantine capabilities to prevent security breaches by isolating potential threats		
• All within a scalable architecture.		
The Tenderer must be able to offer an application to enable the network administrator to quarantine devices to protect the		

network from attacks.		
The solution needs to be able to effectively manage Virtual Machine environment:		
• Automatic VM Move		
• Auto VLAN		
• Auto address allocation		
• Address updates		
The solution needs to be able to give network managers the ability to monitor and influence the network traffic exchanged between VMs within the same VM hardware.		

7.18.6 LAN CORE

The request is for LAN core switching. In general terms, the system implementation at this level requires a large investment on the part of the client. In order to protect this investment, the hardware and software must be economically future proofed to ensure continued usability for the duration of the expected lifetime of the network. Please detail projected ROI information.

In order to meet the requirements of this offer, the Tenderer must be able to supply details on subjects listed in the following sections.

The switches must meet with the following general requirements:	**Comply**	**Non-Comply**
• Large switching capacity, high 10GigE port densities		
• Optional 40Gbit ports availability		
• Advanced security access		
• Advanced QoS features (Prioritization, Filtering, Server Load Balancing, ...)		
• Wire-rate processing for IPv4/IPv6		
• Non-Blocking switch architecture		
• Support of MC-LAG		
• Support Ethernet Ring Protection (ERP)		
• Full support for unicast and multicast applications such as voice-over-video collaboration		
• Meet Restriction on Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive		

7.18.7 Availability

To ensure full availability in the LAN Core, the proposal must comply with the features listed in this section.

The high Gigabit & 10 Gigabit Ethernet port density & performance should offer at least 760 Gigabit Ethernet ports and up to 256 10-Gigabit Ethernet ports on the same chassis-based system.

The chassis must be able to provide the option of 40-Gigabit and 100-Gigabit Ethernet ports now or in the future.

The Tenderer must provide the highest availability possible to support the demands of IP communications and mission-critical applications. Providing the highest availability to the enterprise ensuring that users have constant access to resources and services at all times.

To ensure the highest levels of availability, the Tenderer must provide a distributed architecture, where each Network Infrastructure autonomously supports functions, such as:	**Comply**	**Non-Comply**
• Source learning		
• Spanning Tree functions		
• L2/L3 forwarding		
The switch must provide a wide range of availability features such as:		
• Redundant management,		
• Redundant switching fabric/fault tolerant backplane,		
• Redundant power supplies		
• Link aggregation including 10/40 Gigabit Ethernet that can be configured across physical switch boundaries.		
To remove single points of failure, and minimizes downtime, reduce operational complexity & cost and increase availability for mission-critical applications the switch should include the following features:		
• Redundant modules and sub-components (CMMs, fans and PSUs)		
• Hot swappable modules and sub-components (Network Infrastructures, CMMs, and fan trays, PSUs, SFPs and XFPs)		
• Hitless loading of optional software (routing / security), without re-booting		
• Image rollback to automatically re-load previous configurations and software versions		
To provide a cost effective, highly available, scalable and re-		

configurable network, it would be advantageous to provide a modular based chassis that can be combined with other switches provided by the Tenderer.		
The Tenderer must provide switches that ensure continuity by providing the following capabilities: Hot Swap, Management Module Fail-over, Power Monitoring, and Redundancy. There must be:		
• No single point of failure and a sub-second fail-over in its redundant configuration		
• Redundant Management & Redundant Switch Fabric		
• Hot swappable components & hot insertable support: switch modules, optical transceivers		
• Redundant Power Supplies (Redundant 1:1 power)		
The Tenderer must provide a solution that guarantees Spanning Tree robustness (Single or Multiple STP options): IEEE 802.1D (STP) (802.1D spanning tree for loop free topology and link redundancy) and IEEE 802.1w-Rapid Reconfiguration of Spanning Tree. It must provide:		
• Ring topology Spanning Tree algorithm optimized for ring topology to provide less than 100ms convergence time		
• IEEE 802.1s multiple spanning tree and per-VLAN spanning tree (1x1)		
• Fast forwarding mode on user ports to bypass 30-second delay for spanning tree		
• Preventing unauthorized spanning-tree enabled attached bridges from operating		
• BPDU blocking – automatically shuts down switch ports being used as user ports if a spanning tree BPDU packet is seen, preventing unauthorized spanning-tree enabled attached bridges from operating.		
• Priority queues: eight hardware-based queues per port		
The solution must support:		
• Dynamic link aggregation IEEE 802.3ad (to support automatic configuration of link aggregates with other switches) with resilient uplink capabilities		
• Static link aggregation (that supports automatic configuration of link aggregates with other switches)		
To guarantee hardware resiliency, the proposed product must be resistant to physical and excessive temperature variations. The		

solution should include:		
• Thermal protection/shutdown for the chassis		
• Hardware monitoring, temperature monitoring, and power monitoring & management		
• Short “cold” and “warm” boot times		
• Built-in security and device hardening		

Network and link resiliency are important parts of network availability and the proposed product must support advanced routing, load sharing, and mechanisms for fast reconfiguration of links between switches, servers, and other network devices.
The Tenderer must provide a solution that can support VRRP (Virtual Router Redundancy Protocol), and OSPF ECMP (Equal Cost Multipath Protocol).

7.18.8 Security

To provide high security in the LAN Core, the proposal must comply with the features listed in this section.
The Tenderer must supply applications, embedded or otherwise, to provide proactive, network-wide security through auto-sense authentication that prevents unauthorized network access.
The solution must provide reactive security by automatically handling malicious attacks by taking intrusion information and dynamically reconfiguring the network to contain the attack.
The Switch must support a distributed security approach, enhance emerging security technologies, and help secure the LAN Core using proactive and reactive strategies.
The Tenderer must include a host integrity check solution to ensure that, prior to allowing network entry, attached devices are running administrator defined credentials such as:

- Operating system patch level
- Local firewall is activated
- Antivirus version is up to date.

The host integrity check solution must be able to automatically move hosts that pass inspection dynamically into their proper VLAN based on the user, or move them into a protected environment where they could maintain limited access to network resources for remediation.
The offer must include support for a quarantine engine and support Intrusion Detection Systems (IDS), so that the network can automatically detect attacks and take protective action such as:

- Limiting the traffic
- Placing the device in quarantine

To secure the LAN Core, the switches must support Access control lists (ACLs) to filter out undesirable communication.

The Tenderer must offer a switch which includes an authenticated VLAN feature to provide the ability to authenticate by user with username and password and then dynamically place the user into the proper VLAN IEEE 802.1x, a standards-based approach to network access is an effective way of challenging a user by requesting a username and password before allowing access the network.

The solution should support learned port security that allows only pre-authorized network devices to communicate with each other. This provides protection against rogue devices such as WLAN access points, as well as unsecured and potentially virus infected laptops or PC's.

Switch administration must be secured by encrypting remote management with secure shell (SSHv2) for Telnet, Secure Socket Layer (SSL) for web-based management and SNMPv3 for network wide management systems. Additionally all administrators must be centrally authenticated through a RADIUS, TACACS+, LDAP or ACE server. A local database can be provided on every switch for administrator authentication.

Multi-layer security enables the building of sophisticated hardware and software-based solutions that can be integrated with policy-based management and other technologies such as smart cards, PKI, and biometrics for enhanced security implementations. The switch must provide multi-layer security with a range of security features that can be implemented in the wiring closet, the core, and throughout the network.

These include:	**Comply**	**Non-Comply**
• User authentication		
• Virtual local area networks (VLANs)		
• VLAN Quarantine		
• Access Control Lists (ACLs)		
• Restriction for user ports from sending control traffic (BPDU, RIP, OSPF, BGP)		
• IP source address spoofing prevention		
• Switch access authentication		
• Encryption for secure management (SSHv2 / HTTPS / SNMPv3)		
• Denial of service protection		
• Native ability to analyze traffic to detect traffic flows to secure the switch		
Secure management features must be integrated into the architecture including:		
• Authenticated user access, SNMPv3 and SSL for encrypted sessions		

• End-to-End Host integrity check		
• Partitioned management for multi-tiered access and granular network administration.		

7.18.9 Intelligence

To be considered intelligent, the product must support the following features:	**Comply**	**Non-Comply**
• The Tenderer must offer a switch based on a design that can distribute processes on the network interfaces and not rely upon a centralized control plane architecture where the management module is responsible for all processing. The distributed design must allow key processes such as Spanning Tree to maintain a fully operational state.		
• Mission critical applications must always be available by supporting advanced Quality of Service (QoS) features.		
The switch must be able to manage the necessary hardware queues, intelligence and granularity to:		
• Properly identify (identification is based on layer-1 through layer-4 policy-based features)		
• Mark and prioritize data flows		
The Tenderer must provide switches that provide IPv6 support for wire-rate speeds, classification and tunnelling. The performance of the switch must be unaffected whether deploying IPv4, IPv6, or IPv4/IPv6.		
This requirement is essential to address the U.S. Federal government Department of Defense (DoD) requirement that IPv6 be supported for migration and addresses other countries requirements including:		
• Ability to connect to the IPv6 backbone		
• Use of IPv6 across public organizations		
• Ability to interconnect the IPv6 “island” through an existing IPv4 network through hardware-based tunneling		
• Ability to control IPv6 flows with extensive QoS/ACL policies		
The Tenderer offer must support hardware-based classification (Access Control Lists (ACLs) and quality of service (QoS), forwarding and management for IPv6.		
The product must support industry classification standards including 802.1Q/p, TOS, and DiffServ, enhanced with complementary features such as extensive QoS mappings and		

re-tagging of prioritization.		
The proposed product must support:		
• Routing Protocols: IPv4 & IPv6, RIPng, RIPv1/v2 & OSPFv2&v3 & OSPF-ECMP & BGPv4 Note: standardized protocols are preferred		

7.18.10 Manageability

To manage the core, the proposed products must support the following management features. The Tenderer must offer management features that can use device information, data traffic or user identity to automatically and dynamically keep the user connected to their resources seamlessly regardless of their location on the campus. For example, marketing, finance, operations and sales could all be in the same meeting at a common physical location, yet have secure and dynamic access to their respective network resources.

The switch should provide all the benefits of managing a truly chassis-based switch including:	**Comply**	**Non-Comply**
• Simple and quick software upgrades		
• Switch configuration changes		
The switch must include an industry standard command line interface (CLI) to simplify configuration for technical staff.		
To manage the Power over Ethernet capabilities effectively and avoid any configuration errors on the 10/100/1000 ports, the switch ports must include auto configuration features to determine:		
• If the cable attached is straight-thru or crossover		
• The nature of the network device (PC, switch, router) to automatically create a link-up condition.		
The switch must be able to manage the energy requirement of the devices and balance this with the energy available to avoid power loss or surcharge.		
The switch must provide installation flexibility by supporting either copper or fiber link connectivity while reducing sparing costs by eliminating the need for separate Gigabit uplink modules.		
The Tenderer must be able to offer management interfaces that:		
• Provide users with commands and user interfaces that can be ergonomically coherent throughout the converged network		
• Can interact with other management systems		

• Can be web-based for user-friendly element management		
• Can use SNMP for third-party network management systems		
The Tenderer must be able to provide management applications and tools that simplify the management of networking devices.		
The application must be able to:		
• Allow managers to monitor network activity		
• Configure and troubleshoot each device		
• Manage an entire network from a single platform		
• Offer network-wide visibility,		
• Element management, and VLAN management		
• Manage policy-based QoS,		
• Have centralized management of secure switch access		
• Quarantine capabilities to prevent security breaches by isolating potential threats		
• All within a scalable architecture.		
The Tenderer must be able to offer an application to enable the network administrator to quarantine devices to protect the network from attacks.		
The solution needs to be able to effectively a manage Virtual Machine environment:		
• Automatic VM Move		
• Auto VLAN		
• Auto address allocation		
• Address updates		
The solution needs to be able to give network managers the ability to monitor and influence the network traffic exchanged between VMs within the same VM hardware.		

7.18.11 LAN AGGREGATION

The request is for LAN aggregation switching. In order to protect this investment, the hardware and software must be economically future proofed to ensure continued usability for the duration of the expected lifetime of the network. Please detail projected ROI information.		

The aggregation switches must be L3 switches that can be upgraded easily to accommodate changes in traffic demand and fluctuations in personnel requirements. Options that are considered as useful include:	**Comply**	**Non-Comply**
• Power supply redundancy with hot swap support		
• AC and/or DC power availability for the 24 or 48 port switches		
• Power over Ethernet capabilities to support VoIP phones, WLAN AP, security cameras etc.		
• Possibility to upgrade any 10/100 ports to Gigabit capacity		
• 10 Gigabit uplink availability		
To be economically viable for the future, the switch should provide full IPv6 support with hardware-based forwarding for wire-rate speeds, classification and tunnelling. Performance must remain unaffected by enabling IPv6 processing whether deploying IPv4, IPv6, or IPv4/IPv6.		
The switch must provide or support authentication methods to include 802.1x AVLANs, MAC authentication PKI etc.		
To reduce administration costs, a user-friendly centralized management must be available to provide:		
• Network activity monitoring		
• Device configuration and troubleshooting		
• VLAN management		
• ACL management		
• Quality of Service configuration		
• Switch access security		
• Quarantine possibilities for visiting users		
For security and facility the wired and mobile users must be treated in the same way by using RADIUS authentication.		
The switches must meet with the following general requirements:		
• Advanced security Access		
• Advanced QoS features (Prioritization, Filtering, etc.		
• End-to-End host integrity check		
• Dynamic analysis of traffic to eliminate harmful flows		

• Flexible power-over-Ethernet (PoE) support		
• Wire-rate processing for IPv4/IPv6		
• Full support for unicast and multicast applications such as voice-over-video collaboration		
• Meet Restriction on Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive.		

7.18.12 Availability

To ensure full availability in the LAN, the proposal must comply with the features listed in this section.		
The Large Gigabit port density & performance should offer at least 360 Gigabit Ethernet ports and offer a 10-Gigabit Ethernet ports option on the same logical entity.		
The switch must be able to provide a wide range of availability features such as:	**Comply**	**Non-Comply**
• Redundant management		
• Redundant power supplies		
• Link aggregation including 10Gigabit Ethernet that can be configured across physical unit boundaries.		
To remove single points of failure, minimizes downtime, reduce operational complexity & cost and increase availability for mission-critical applications, the switch should include the following features:		
• Redundant CPU (1+1) (within a stacked configuration)		
• Hot removal/insertion of units within a stack		
• Hot swappable sub-components(transceivers – PSU)		
• Hitless loading of optional software (routing / security), without re-booting		
• Image rollback to automatically re-load previous configurations and software versions		
To provide a cost effective, highly available, scalable and re-configurable network, it would be advantageous to provide a modular based chassis that can be combined with other switches provided by the Tenderer.		
The Tenderer must provide standards based features such as:		
• Per-VLAN spanning-tree 802.1s and rapid recovery spanning-tree 802.1w to provide added resiliency, fast fail-over to redundant links and layer-2 load sharing on		

otherwise unused network links (bandwidth capacity).		
• Dynamic link aggregation 802.3ad to provide inherent fail-over to remaining existing links in the aggregate should one or more links fail and automatically builds multi-gigabit capacity with other switches.		
• Backup power availability in case of any power supply failure		
The Tenderer must provide switches that ensure continuity by providing the following capabilities: Hot Swap, Management Module Fail-over, Power Monitoring, and Redundancy. There must be:		
• No single point of failure and a sub-second fail-over in its redundant configuration		
• Redundant Management & Redundant Switch Fabric		
• Hot swappable components & hot insertable support: switch modules, transceivers		
• Redundant Power Supplies (Redundant 1:1 power) & Redundant 1:1 PoE power provided by the PoE P/S.		
The Tenderer must provide a solution that guarantees Spanning Tree robustness (Single or Multiple STP options): IEEE 802.1D (STP) (802.1D spanning tree for loop free topology and link redundancy) and IEEE 802.1w-Rapid Reconfiguration of Spanning Tree. It must provide:		
• Spanning Tree algorithms optimized for ring topologies to provide less than 100ms convergence time		
• IEEE 802.1s multiple spanning tree and per-VLAN spanning tree (1x1)		
• Fast forwarding mode on user ports to bypass 30-second delay for spanning tree		
• Preventing unauthorized spanning-tree enabled attached bridges from operating		
• BPDU blocking – automatically shuts down switch ports being used as user ports if a spanning tree BPDU packet is seen thus preventing unauthorized spanning-tree enabled attached bridges from operating.		
• Priority queues: eight hardware-based queues per port		
The solution must support:		
• Dynamic link aggregation IEEE 802.3ad (to support automatic configuration of link aggregates with other switches) with resilient uplink capabilities		
• Static link aggregation (that supports automatic configuration		

of link aggregates with other switches).		
To guarantee hardware resiliency, the proposed product must be resistant to physical and excessive temperature variations. The solution should include:		
• Thermal protection/shutdown for the chassis		
• Hardware monitoring, temperature monitoring, and power monitoring & management		
• Short “cold” and “warm” boot times		
• Built-in security and device hardening		
Network and link resiliency are important parts of network availability and the proposed product must support advanced routing, load sharing, and mechanisms for fast reconfiguration of links between switches, servers, and other network devices.		
The Tenderer must provide a solution that can support VRRP (Virtual Router Redundancy Protocol), and OSPF ECMP (Equal Cost Multipath Protocol).		

7.18.13 Security

To provide high security in the LAN Aggregation, the proposal must comply with the features listed in this section.

The Tenderer must supply applications embedded or otherwise to provide proactive, network-wide security through auto-sense authentication that prevents unauthorized network access.

The solution must provide reactive security by automatically handling malicious attacks by taking intrusion information and dynamically reconfiguring the network to contain the attack.

The Tenderer must include a host integrity check solution to ensure that, prior to allowing network entry, attached devices are running administrator defined credentials such as:

- Operating system patch level
- Local firewall is activated
- Anti-virus version is up to date.

The host integrity check solution must be able to automatically move hosts that pass inspection dynamically into their proper VLAN based on the user, or move them into a protected environment where they could maintain limited access to network resources for remediation.

The offer must include support for a quarantine engine and support Intrusion Detection Systems (IDS), so that the network can automatically detect attacks and take protective action such as limiting the traffic and placing the device in quarantine to secure the LAN.

The switches must support Access control lists (ACLs) to filter out undesirable communication.

The Tenderer must offer a switch which includes an authenticated VLAN feature to provide the ability to authenticate by user with username and password and then dynamically place the user into the proper IEEE 802.1x VLAN. A standards-based approach to network access is an effective way of challenging a user by requesting a username and password before allowing access the network

The solution should support learned port security that allows only pre-authorized network devices to communicate with each other. This provides protection against rogue devices such as WLAN access points, as well as unsecured and potentially virus infected laptops or PC's.

Switch administration must be secured by encrypting remote management with secure shell (SSHv2) for Telnet, Secure Socket Layer (SSL) for web-based management and SNMPv3 for network wide management systems.

Additionally all administrators must be centrally authenticated through a RADIUS, TACACS+, LDAP or ACE server. A local database can be provided on every switch for administrator authentication.

Multi-layer security enables the building of sophisticated hardware and software-based solutions that can be integrated with policy-based management and other technologies such as smart cards, PKI, and biometrics for enhanced security implementations. The switch must provide multi-layer security with a range of security features that can be implemented throughout the network.

These security features include:	**Comply**	**Non-Comply**
• User authentication		
• Virtual local area networks (VLANs)		
• VLAN Quarantine		
• Access control lists (ACLs)		
• Restriction for user ports from sending control traffic (BPDU, RIP, OSPF, BGP)		
• IP source address spoofing prevention		
• Switch access authentication		
• Encryption for secure management (SSHv2 / HTTPS / SNMPv3)		
• Denial of service protection		
To secure the management, features must be integrated into the architecture including:		

• Authenticated user access		
• SNMPv3 and SSL for encrypted sessions		
• Partitioned management for multi-tiered access and granular network administration.		

7.18.14 Intelligence

To be considered intelligent, the product must support the following features:	**Comply**	**Non-Comply**
• The Tenderer must offer a switch based on a design that can distribute processes on the network interfaces and not rely upon a centralized control plane architecture where the management module is responsible for all processing. The distributed design must allow key processes such as Spanning Tree to maintain a fully operational state.		
• Mission critical applications must always be available by supporting advanced Quality of Service (QoS) features		
The switch must be able to manage the necessary hardware queues, intelligence and granularity to:		
• Properly identify (identification is based on layer-1 through layer-4 policy-based features		
• Mark and prioritize data flows		
The Tenderer must provide switches that provide IPv6 support for wire-rate speeds, classification and tunnelling. The performance of the switch must be unaffected whether deploying IPv4, IPv6, or IPv4/IPv6.		
This requirement is essential to address the U.S. Federal government Department of Defense (DoD) requirement that IPv6 be supported for future migration and addresses other countries requirements including:		
• Ability to connect to the IPv6 backbone		
• Use of IPv6 across public organizations		
• Ability to interconnect the IPv6 “island” through an existing IPv4 network through hardware-based tunneling		
• Ability to control IPv6 flows with extensive QoS/ACL policies		
The Tenderer offer must support hardware-based classification (Access Control Lists (ACLs) and quality of service (QoS), forwarding and management for IPv6.		
The product must support industry classification standards including 802.1Q/p, TOS, and DiffServ, enhanced with		

complementary features such as extensive QoS mappings and re-tagging of prioritization.		
The proposed product must support:		
• Power-over-Ethernet (PoE) IEEE 802.3at support		
• Residential bridging features: DHCP option-82, DHCP-Snooping and Port Mapping		
• Routing Protocols: IPv4 & IPv6, RIPng, RIPv1/v2 & OSPFv2&v3 & OSPF-ECMP & BGPv4		

7.18.15 Manageability

To manage the LAN, the proposed products must support the following management features.		
The Tenderer must offer management features that can use device information, data traffic or user identity to automatically and dynamically keep the user connected to their resources seamlessly regardless of their location on the campus. For example, marketing, finance, operations and sales could all be in the same meeting at a common physical location, yet have secure and dynamic access to their respective network resources.		
The switch should provide all the benefits of managing a virtual chassis-based switch including:	**Comply**	**Non-Comply**
• Simple and quick software upgrades		
• Switch configuration changes		
The switch must include an industry standard command line interface (CLI) to simplify configuration for technical staff.		
To manage the Power over Ethernet capabilities effectively and avoid any configuration errors on the 10/100/1000 switch, the switch ports must include auto configuration features to determine:		
• If the cable attached is straight-thru or crossover		
• The nature of the network device (PC, switch, router) to automatically create a link-up condition.		
The switch must be able to manage the energy requirement of the devices and balance this with the energy available to avoid power loss or surcharge.		
The switch must provide installation flexibility by supporting		

either copper or fiber link connectivity while reducing sparing costs by eliminating the need for separate Gigabit uplink modules.		
The Tenderer must be able to offer management interfaces that:		
• Provide users with commands and user interfaces that can be ergonomically coherent throughout the converged network		
• Can interact with other management systems		
• Can be web-based for user-friendly element management		
• Can use SNMP for third-party network management systems		
The Tenderer must be able to provide management applications and tools that simplify the management of networking devices.		
The applications must be able to:		
• Allow managers to monitor network activity		
• Configure and troubleshoot each device		
• Manage an entire network from a single platform		
• Offer network-wide visibility		
• Element management, and VLAN management		
• Manage policy-based QoS		
• Have centralized management of secure switch access		
• Quarantine capabilities to prevent security breaches by isolating potential threats		
• All within a scalable architecture.		
The Tenderer must be able to offer an application to enable the network administrator to quarantine devices to protect the network from attacks.		

7.18.16 LAN EDGE

The request is for edge switching to meet the current and future edge requirements.

The edge proposition should be based on L2/L4 switches in the knowledge that these switches should make only a limited impact on current environments. The size should be specified to ensure that the switch can be stackable or mounted in standard racks with other telephony servers.

The Tenderer should indicate their limitation for any eventual increase in traffic requirements with respect to port density and capacity.

Power over Ethernet (PoE) is one of the current important features. The Tenderer should provide details of the energy saving capabilities and security provided by the switch to manage energy on a port by port basis to power the devices.
To ensure provision for current and future power requirements for additional devices, the Tenderer will supply a switch with Power over Ethernet (PoE) capabilities on all ports.

In addition to a full L2/L4 classification, the switch must have general features for:	**Comply**	**Non-Comply**
• Marking, and prioritization for QoS and security		
• Basic Routing functions (Static and RIP)		
• Advanced VLAN classification (MAC, IP Protocol)		
• VLAN stacking for Residential Ethernet services		
• Up to two Gigabit ports per switch for uplink or server connectivity		

7.18.17 Availability

To ensure full availability, the switch must support the following features:	**Comply**	**Non-Comply**
• The solution must include redundant management & redundant switch fabric (in a stacking configuration).		
• The stackable switches must support up to 8 modules.		
• It must support hot swappable components & hot insertion support for switch modules and transceivers		
• It must support redundant power supplies (Redundant 1:1 power) & Redundant 1: 1 PoE power provided by the PoE Power supply.		
The Spanning Tree Protocol should include the following features:	**Comply**	**Non-Comply**
IEEE 802.1d: IEEE 802.1D (STP) (802.1D spanning tree for loop free topology and link redundancy)		
IEEE 802.1w: IEEE 802.1w rapid recovery spanning tree allows sub-second failover to redundant link		
IEEE 802.1s: IEEE 802.1s multiple spanning tree		
Fast Port		
BPDU Filtering when STP is disabled		
Spanning Tree Protocol (STP) Root Guard		
Fast-forwarding mode on user ports to bypass 30-second delay for spanning tree		

Static and 802.3ad dynamic link aggregation that supports automatic configuration of link aggregates with other switches. (that supports automatic configuration of link aggregates with other switches) with resilient uplink capabilities

IEEE 802.1s: MISTP (802.1s) is an IEEE standard which allows several VLANs to be mapped to a reduced number of spanning-tree instances. This is possible since most networks do not need more than a few logical topologies. Each instance handles multiple VLANs that have the same Layer-2 topology.

The switch must be protected against the possibility of Broadcast storm.

The switch solution should support both short “cold” and “warm” boot times

To allow for scalability and redundancy, it should be possible to create a fault tolerant loop stack topology with up to 8 units

Topological Network Redundancy: In order to provide the highest levels of availability throughout an enterprise, it is important to build redundancy and resiliency into the topology at the network level to insure that links have backups and traffic is always flowing:

- Physical redundancy
- Layer-2 redundancies

7.18.18 Security

To provide high security, the proposal must include the following features:	**Comply**	**Non-Comply**
• IEEE 802.1x port based user authentication with multiple host mode		
• IEEE 802.1x multi-client, multi-VLAN support for per-client authentication and VLAN assignment		
• Private VLAN edge or port mapping		
• Guest VLAN provides limited network access for unauthorized clients		
• MAC address Lockdown allows only known devices to have network access preventing unauthorized network device access includes lockdown after a user-configured number of MAC address have been learned		
The offer must support:		
• DHCP Option 82 and DHCP snooping for IP address allocation control and protection		
• RADIUS and TACACS+ admin authentication to prevent unauthorized switch management		
• Secure Shell, Secure Socket Layer and SNMPv3 for encrypted remote management communication		
• Access control lists to filter out unwanted traffic including denial of service (DoS) attacks		

• Access control lists (ACLs) are per port, MAC SA/DA, IP SA/DA, ICMP type and code, Ethertype, TCP/ UDP port		
• STP root guard to prevent an unauthorized device from becoming the root of a spanning tree		
The Tenderer must include a host integrity check solution to ensure that, prior to allowing network entry, attached devices are running administrator defined credentials such as:		
• Operating system patch level		
• Local firewall is activated		
• Antivirus version is up to date.		
The host integrity check solution must be able to automatically move hosts that pass inspection dynamically into their proper VLAN based on the user, or move them into a protected environment where they could maintain limited access to network resources for remediation.		

7.18.19 Intelligence

To be considered intelligent, the product must support the following features:	**Comply**	**Non-Comply**
• Wire-rate layer-2 forwarding and advanced layer-2 – layer-4 services		
• Layer-2 Switching Capacity: 24-port platforms 12 Gbps FD – 48-port platforms 96 Gbps FD		
• Layer-2 Throughput/forwarding rate: 24-port platforms 13 Mpps – 48-port platforms 70 Mpps		
• Store-and-forward mode		
When using the stacking capabilities (of up to 8 units):		
• Auto MDI/MDIX / Auto MDI/MDIX automatically configures transmit and receive signals to support straight thru and crossover cabling		
• Auto-negotiation / Auto-negotiating 10/100/1000 ports automatically configure port speed and duplex set		
• Duplex mode		
• Head of Line (HOL) Blocking Prevention		
• Flow Control Support (IEEE802.3X) / Back Pressure Support		
• Cable Analysis		
• Optical Transceiver Analysis		
• Port Controls		

• MAC Address Support of up to 16K		
• Up to 255 VLANs support		
• Up to 4,094 VLAN tag value support		
• VLAN-Aware MAC-based Switching		
• Environmental Monitoring including the Fan Status Support		
VLANs, VLAN (802.1Q) Tagging, Private VLAN Edge, Protocol Based VLANs, IP Subnet-based VLANs and MAC-based VLANs, and Port-based VLANs		
L2 Multicast support should include Static Multicast Groups, Multicast VLAN, and IGMP Snooping v1 &v2 Multicast TV VLAN registration per port for maximum bandwidth efficiency between edge and core		
The Tenderer must include in the offer methods or applications to provide:		
• Protection against Packet Storm Control		
• System IP Address Management		
• BootP and DHCP Clients for IP Address Assignments		
• Mini-Jumbo Frames (up to 1632 Bytes)		
The Tenderer must include extensive L2/L3/L4 Quality of Service features.		
L2/L3/L4 COS/QoS support including Classification, Marking, Mapping, and Rate Limiting to overcome unpredictable network traffic and optimize performance,		
The switch must support basic QoS: and advanced. QoS to include at least the following		
• 802.1p, TOS, DSCP marking		
• QoS mapping: 802.1p to TOS/DSCP, TOS to 802.1p/DSCP, DSCP to 802.1p/TOS		
• Classification per port, 802.1p(COS) value, MAC SA/DA,		
• Ethertype, TOS precedence,		
• DSCP value, ICMP code and type, IP SA/DA, IP protocol, TCP/UDP port		
• Four egress queues per port that support strict and WRR queuing algorithms		
• Ingress bandwidth rate limiting per port/flow		

• Egress bandwidth rate limiting per port/queue		
• Traffic anomaly detection		

7.18.20 Manageability

To manage the switch, the proposed switches must support the following features:	**Comply**	**Non-Comply**
Access to the switch must be limited according to administration profile rights.		
For out-of-band management, the switch should be equipped with an RJ-45 console interface management port; this console interface should be configured as DTE for operation, diagnostics, status, and configuration information.		
For In-Band management: Telnet, Web-based HTTP or HTTPS, SNMP manager, or Secure Shell (SSH)Remote Telnet Management or Secure Shell, it must be possible to use remote authorization and authentication by supporting RADIUS and TACACS+		
The system must include an easy-to-use Web-Based Element Manager with built-in help to facilitate configuration.		
Power over Ethernet support must include management for:		
• Automatic power allocation according to the class of the device		
• Power consumption per port to avoid any surcharge or power disruption		
Features that should be available for management include:		
• Human readable ASCII-based configuration files for offline editing and bulk configuration		
• Port based, Port Mirroring for troubleshooting		
• SNMP: Management access via MIB database (SNMPv1/v2c/v3), Trap management to specified hostsSNMPv1/v2/v3		
• Support for RFC 2819 RMON-I groups (1-Statistics, 2-History, 3-Alarm & 9-Events		
• Simple Network Time Protocol (SNTP) for network wide time synchronization		
• Web-based Management Element Manager		
• Mapping Adjacency Protocol (AMAP) for building topology maps within an NMS		
• Virtual cable tester provides switch-based integrity testing on copper Ethernet cabling		

To fulfill the requirement for system observation, error messages logging must be available to record events and corresponding times. There must be an easy method to visualize the recent error messages and the possibility to record the logs on a remote server (Syslog).		

C3

7.19 WLAN

The WLAN switches should be specifically suited to the mobility market to identify and authenticate users automatically as they connect to the network. It must have an integrated firewall, an integrated wireless IDS/IPS and support centralized encryption.

The Tenderer must provide a high-performance wireless LAN with dynamic radio frequency (RF) management and advanced services such as voice aware policies, application-aware security, wireless intrusion protection, seamless user mobility, location tracking and bandwidth management.

Tenderer must describe the specific features or services for managing voice on the wireless LAN intelligently.

The Tenderer must provide an enterprise-class, modular WLAN switch that connects, controls, and intelligently integrates wireless Access Points (APs) and Air Monitors (AMs) into the wired LAN.

It must incorporate the following features:	**Comply**	**Non-Comply**
• High-performance packet processing to provide value-added wireless services such as load balancing, rate limiting, self-healing, calibration, authentication, mobility, security, and centralized monitoring and configuration.		
• Supports 48, 128, 256 and 512 APs through L2 or L3 network		
The Tenderer switch must provide the possibility of a guest connection profile to access the network with restricted rights. Parameters for the guest connection should include:		
• Usernames/passwords		
• Expiration date/time		
• Add and delete guest accounts		

The switch must support an Integrated Firewall with pin holing capabilities to support dynamic protocols such as SIP.

The stateful Firewall should also be able to apply QoS rules on dynamic protocols such as SIP. The pin holing and QoS capability shall also apply to static port protocol such as http.

802.11e QoS (WMM) must be supported by the WLAN system. It must be integrated in such a way that in conjunction with the other QoS the end to end communication quality or security is not compromised. This integration should not require any additional servers.

7.19.1 SCALABILITY

To offer scalability to the enterprise the Tenderer must provide WLAN switches that can handle up to 2048 access points on a single WLAN switch chassis. The switches must integrate completely and seamlessly with the existing and future telephony system with the ability to increase capacity as traffic increases.

7.19.2 SECURITY

To ensure the access security, the Tenderer must offer a Network Access Control application. The NAC must be configurable to reflect access policy criteria, including user identity, device identity, application used, physical location of user, time of day, authentication method and SSID.

The Tenderer must provide switches that support multiple authentication methods including:	**Comply**	**Non-Comply**
• 802.1x,		
• Web-based captive portal,		
• RSA SecureID,		
• PPP/L2TP for VPN access,		
• IPSec/XAUTH for VPN access,		
• MAC address authentication.		
• Standard authentication databases including RADIUS, and LDAP or an internal database		
The system must provide wireless intrusion protection to be able to defend itself from attacks such as:		
• Wireless probing/discovery		
• Denial of service (DoS)		
• Impersonations		
• Man-in-the-middle		
• Unauthorized intrusions		
In addition to attack protection, wireless system must enforce wireless security policies, including the ability to detect and prevent weak WEP initialization vectors (IVs), AP misconfiguration, ad-hoc networks, unauthorized NIC types, and wireless bridges.		

To avoid dispersion of some key security data, the encryption keys must be stored in the centralized switch not in the Access Points.		
The WLAN system should be able to support all the following encryption protocols:		
• AES-CCMP (WPA2),		
• AES-CBC (up to 256 bits),		
• DES,		
• Triple-DES,		
• WEP (64 or 128 bit),		
• TKIP (WPA1),		
• MPPE (PPTP),		
• SSL (up to 128 bits).		
The Tenderer must provide a system which allows users to move freely without the need to restart sessions or re-authenticate each time. User mobility features should include: wireless fast roaming, transparent inter-subnet (L3) roaming, proxy mobile-IP support for roaming between multiple WLAN switches, and proxy DHCP.		
WLAN platforms provided by the Tenderer must be able to integrate into wired networks without requiring reconfiguration of existing network components. To facilitate this integration the systems must support:		
• 802.1D spanning tree		
• 802.1Q VLAN tagging		
• 802.1p prioritization		
• IP DiffServ/TOS		
• IP tunnels using GRE or IPSec		
• DHCP server		
• UDP forwarding (DHCP helper)		

7.19.3 MANAGEMENT

The Tenderer must provide a user friendly management GUI for planning, monitoring, fault management, reporting, RF coverage and location visualization.

The Tenderer must provide an application that can:	**Comply**	**Non-Comply**
• Track users/client devices		

• Identify rogue devices		
• Plan new deployments		
• Enable rapid troubleshooting of client issues		
• Visualize RF coverage patterns across the entire wireless network		
The Tenderer must provide an application to integrate WLAN switches with the management application to provide “discovery” and topology features to view both wired and wireless network elements and topologies from a single screen.		
The management of the switch and Access Points (APs) should be adaptive and must provide management capabilities for:		
• Automatic channel selection		
• Automatic power selection		
• 3-dimensional access point (AP) location planning tool		
• Interference detection and avoidance		
• Coverage hole detection		
• Configurable performance thresholds		
• Self-healing around failed radios		
• Radio load balancing		
• Wireless RMON statistics		

The system must be able to recognize and deal with rogue interfering, or legitimate Access Points. For example the recognition of a rogue AP should result in its quarantine and generate a warning to the administrator.

7.19.4 ACCESS POINTS

	Comply	**Non-Comply**
The Tenderer must provide Access points to cover the site areas comprehensively for interior and exterior usage. The Tenderer must be able to provide the necessary audit and testing services to ensure this coverage.		
The Access Points must not store configuration information when powered off in order to increase network security. Configuration information will be downloaded to the AP on boot.		
To cover for problematic geographical radio cover, the Tenderer must be able to offer adequate antennae options.		

The access points provided by the Tenderer must be able to use different authentication methods including Captive Portal, 802.1X, MAC-based, RADIUS, LDAP and SecurID.		
The access points must support:		
• 802.11a		
• 802.11b/g/n		
• 802.11n		
• 802.11a & 802.11b/g & 802.11n		
The Access points must support recent security standards including 802.11i, WPA and WPA2.		

7.20 IP TELEPHONY

7.20.1 FUNCTIONAL REQUIREMENTS

The objective of this RFP in terms of architecture is unification of the voice, video and data communication infrastructures, to build-up a communication platform that is standards based, interconnecting the different elements of a distributed system. Elements in the network include the items such as: Control, Media Gateways with or without intelligence, IP phones, IP application phones, and servers; that work collectively as a single system over the same common transport infrastructure.

The system must be capable of managing a large range of telephonic services, integrated contact center applications and unified messaging and collaboration applications.The aim is to provide a system that can be managed easily and react rapidly to any dynamic geographical and organizational moves and changes.

The Tenderer should be able to offer network capabilities that can support up to:	**Comply**	**Non-Comply**
• 100 000 users in a multi-site network configuration;		
• 24 000 media gateways;		
• 4 000 virtual user communities.		
The Tenderer must provide appliance servers that can support up to:		
• 15 000 IP phones;		
• 240 media gateways;		
• 1 000 sites (IP domains);		
• 5 000 trunks.		
The centralized architecture will be based on the use of a communication server to provide support for:		

• One or more media gateways to allow for legacy connectivity;		
• IP communication devices (Smart desk phone, IP desktop, Wireless IP, multimedia PCs, SIP phones, or H.323 terminal devices);		
• Legacy TDM communication devices (digital terminals, analog terminals, DECT terminals);		
• Local or remote network management systems.		
The system must be able to interoperate with other telephone systems and endpoints using the following standards:		
• SIP;		
• H323;		
• QSIG GF;		
• QSIG BC;		
• DPNSS;		
• DSS1.		

7.20.2 COMMUNICATION SERVICES AND TELEPHONY FEATURES

The Tenderer will describe which of the following features that can be offered to the users without restriction, and how they operate when different. The offered system must support the following services without the need for any external or additional server to support them.

7.20.3 Telephony features

List and describe the standard call features available for the telephones supplied with the offer. Please, detail the following points:
• Internal calls;
• Consultation call;
• Calls outside the system (direct outward dialing – DOD);
• Attendant call;
• Over dialing (DTMF dialing);
• Number store (store/redial) and communication log;
• Consultation call;
• Broker call;
• Transfer;
• Non answered calls;
• Callback:

o Call back to last caller;
o Automatic call back (activate / cancel);
o Call back request (activate / cancel);
o Call back request notification;
• Communication forwarding;
• Three-party conference.
Advance call features
List and describe the advanced telephony features available for the telephones supplied with the offer. Please, detail the following points:
• Call announce;
• Call park/call park retrieval;
• Barge-in (intrusion);
• Listening to background music;
• Sending and receiving messages;
• Substitution should be available to the entire set of terminals in the installation;
• A work group consists of a set of general-purpose users having a specific professional association. Each member of the group needs the capability to handle calls for another member when the latter is absent or busy. • To perform such coverage, the group requires the following configuration:
o One or more DID lines will be programmed for the group;
o Every member should be informed of the state of the lines (busy, free, or on-hold);
o Every member should be informed of the status of the terminals that are members of the group;
o Information reported on all terminals will be able to take two forms, visual only or visual and tone;
o Every member of the group will be able to answer all direct calls;
o Every member of the group will be able to put the lines individual or common hold;
o Every member of the group will be able to transfer the calls by a direct call key, by dialing, or vocally;
o The Tenderer will indicate the maximum number of members of a work group; the minimum requirement for users belonging to a work group is 20 members.
• Supervised work group: In this work group, the members are not general-purpose; in their absence, their calls are handled by a workstation that may be termed a coverage or supervision terminal (i.e., a terminal that indicates when a terminal has picked up or has hung up).
o The coverage or supervision terminal will be equipped to monitor and indicate the

status of all terminals in the group;
o The following status information will appear at the coverage in two ways, visual indication and tone indication:
▪ Busy terminal;
▪ Terminal receiving a call (ringing);
o The members of the group will be equipped with the analog terminals, each with a specific DID number; each terminal will have the capability to call the group or team leader or manager by a specific code or digit;
o The group leader will have the capability of answering all calls to members of the group, and of calling each one of them directly via a key on their set;
o Tenderer will indicate the maximum number of members in such a work group; the minimum requirement for users belonging to a work group is 10 members;
• Conferences:
o Describe how conferences can be treated between colleagues and callers:
▪ What type of conference calls can be created?
▪ Can conferences be programmed?
▪ Can conferences be created "on the fly?"
▪ Detail any specific hardware requirements.
o Describe how your IP telephone system provides for audio conference bridging:
▪ Why or how would our company benefit from using your product or services?
▪ How would we benefit?
▪ What are the most significant features of your product or services for this offering?
▪ Provide a list of the technical aspects of this offering.
o Describe how your IP telephone system provides for ad-hoc audio conferencing:
▪ Why or how would our company benefit from using your product or services?
▪ How would we benefit?
▪ What are the most significant features of your product or services for this offering?
▪ Provide a list of the technical aspects and limits of this offering.
• Multiline capabilities;
• Does your solution provide the possibility for anyone in a team to take an important call? • This would require a call recognition feature and the possibility for anyone to recognize the origin of the call, describe the mechanism and explain any restrictions.
• Users whose terminal is equipped with a display and alphabetic keyboard should have the capability to call, to transfer, or forward calls to other internal or external parties by entering their name:

o Call by name;
o Transfer by name;
o Forward call by name;
o The name will be searched for in two ways: last name & first name or initials;
o The database must be an application centralized within the telephone system and synchronized with management operations, in order to keep the data up to date;
o If the name sought is not available in the database, the search should automatically overflow to other LDAP directories in the Buyer's network system;
o To facilitate management operations, when a name is fixed to a speed dial number, the name and number information will appear automatically in the database used by the call by name feature;
o This service must not be limited to a simple call, but must also be used in all call states (e.g., consultation calls, terminal programming of call forwarding and automatic callback, or other service);
• Describe the manager/assistant concept and explain the methodology with your phones:
o Call Filtering with manager control;
o Manager/Secretary hot line;
o Private Line for Manager set;
o Absent secretary key;
o Secret listening of the secretary by the manager;
o Multiple Managers / Multiple Secretaries;
• Describe the features and possibilities for supervising a group of telephones. Does the solution allow trunk and mailbox supervision?
• Business account code;
• Private call / Personal Identification Number (PIN);
• Associated number for overflow:
o on either busy or no reply;
o on both busy and no reply;
o on out of order.
• Appointment reminder;
• On hold/retrieval from hold;
• Listening to tones and voice guides;
• Do not disturb;
• Speed dialing;
• Can the telephone sets provided in your offer be personalized by individual users?

o How can users access personal customization features on the desktop telephone sets?
o Describe briefly the features that can be customized.
• Supplementary ISDN services.
Is it possible to provide restrictions that can be applied to the telephone sets in a business context? Describe the specific services and their benefits or advantages to the clients.
Is it possible to contact a multi-device user from a unique number and change device during a speech call?
Is it possible to contact a multi-device user from a unique number?
Describe briefly the instant communication features that are included or can be included in your offer.
Describe how access is obtained to the directories. Is it possible to customize the directory to find the right contact?
How the Desktop PC is used in conjunction with the communication devices?
Direct Inward System Access – DISA The IP PBX system will allow a user who is calling from outside of the system to establish an internal or external system connection from his or her DTMF telephone.
• Access to the service will be protected by a general secret code and the access to the personal line by an individual secret code.
Remote management of the telephone: The IP PBX system will allow a user who is outside of the system to modify the answering modes of his or her telephone terminal (voice messaging, external call back, etc.).
• Access to the service will be protected by a general secret code or will be automated according to the caller ID transmitted by the network;
• Access to terminal management is protected by individual secret code.
Text mini-message between advanced sets.
Distinctive ringing for internal and external calls on all types of sets.
Call recording on voice mail.
Twinset: Two multiline sets with (same) Directory Number (TDN) and common voice mail and accounting.
Voice prompts or guides (multi language)
Does your offer include the possibility to provide users with vocal information about the phone status and available options?
What provisions are available to welcome callers and direct them to features or different services?
At least three different languages are required (Language 1,a Language 2 and Language 3), and the vocal guides will be distributed to users according to the language associated with each user.
There should never be two or more different languages on the same voice prompt; the combination of different languages on the same voice guide is not accepted.

Does your answering service allow successive options to refine their search to specific services?
What advantages does the automatic voice messaging system provide? Provide examples of the standard messages.
Does your offer include the possibility of customizing your voice messages?
Is an application available for customizing the voice messages? What are the principle features of the application?
What sound features are available for the incoming call in an on-hold status? How are they configured within the network?
Can additional hardware be used to provide music for callers in the on-hold status in smaller configurations?

7.20.4 Integrated voice messaging

The IP PBX system must be equipped with a voice messaging application that can be managed from the system management platform.

Tenderer will describe all the services available to the users and the voice messaging system administrator, the maximum number of voice mailboxes, the maximum recording capacity, and number simultaneous links that can be handled.

What solutions can you provide for voice messaging? Describe the solutions that are proposed for voice mail. Describe when and why the different solutions can be used.
Describe the principle functions of the voice mailbox, how the voice mail is accessed, replies, recording possibilities, visual indications.
Can the voice mail be used in the hospitality environment?
Describe the principle functions of the automated attendant voice mailbox. Describe the scenarios for the basic functions.
Can the mailbox system be used as independently for information or directory access?
What possibilities exist for your voice mail application to interact with other voice mail systems in the same network?
What protocols are used to ensure the voice messaging, in terms of transport and security?
Outline the basic topologies for the voice mail solution.
Provide a compatibility table for your voice mail solution and other services.
Can the voice mail solution be used in a unified communication application?
What components from your offer are used to create the messaging service?
How is your messaging service implemented and used? Provide examples of the configuration and user interfaces.
Outline how voice mail messaging application is integrated into the network.
Can the voicemail messaging application be used in duplicated communication server network?

What management actions does the administrator perform for the voice mail messaging application?
How are multiple time zones treated by the messaging software?
What basic security measures are used to protect the message service?
What solutions are offered to enable the messaging services application to interact with third party applications?
What are the current capacities for the messaging services application?
How can the messages be stored? Describe the principle storage methods and provide capacity capabilities.
How is the messaging service secured for availability and data protection?
How is the messaging service managed? Does the management include backup and restore features?

7.20.5 Greeting / attendant features

Greeting
What attendant telephony options are available in your offer? The tenderer should be able to provide at least: • an entry level phone with attendant capabilities; • a screen based model; • and a multimedia attendant console to efficiently manage calls. Describe in each case their principle features.
Attendant common services
Describe what general actions can be performed by the attendant.
Describe how the calls are seen by the attendant and what options are available for handling the calls.
Describe what actions can be performed by the attendant for basic incoming calls.
Is it possible to prioritize specific calls? Describe what actions can be performed by the attendant for priority calls and how these calls are handled.
Describe what actions can be performed by the attendant for Multi-party calls. How are these actions achieved?
Describe any additional or management features that are available with the Attendant application.
What sort of control is available for the attendant concerning trunk groups?
Are "user keys" which can be configured, available on the attendant phones? Describe how these "User Keys" can be programmed.
Can additional User Keys be added to the attendant telephone? If so, describe how the "User Keys" can be used.
Can additional information be displayed to aid the attendant?

If so, describe the types of information that can be displayed?
Attendant phone set
Introduce your principle attendant phone set.
Describe the general features and layout of the attendant phone set, If any additional options exist, provide details.
Describe the visual display, and the information that can be accessed by the attendant from this interface.
What are the available attendant services with the basic attendant handset? Specify any services that cannot be used by the phone sets when used in an attendant context.
Are there any hardware options to extend the keyboard functions of the attendant phone set? Describe the options.
IP Attendant application for PC
Can you provide an attendant console for attendant services? Present the hardware and software architecture for the attendant console.
Can your attendant application be enhanced with specific keyboard equipment? Describe the attendant actions that can be performed with the keyboard.
What audio equipment is available to improve the attendant equipment and facilitate the attendant tasks?
Describe the IP attendant application displays. What information is visible? What tasks and features can be customized by the attendant?
Describe the interface displays for the attendant application. What information is visible?
Can the attendant customize or personalize the attendant services? Explain how this is accomplished.
Are there any specific features that are available during a call?
Is the attendant application capable of using different directories?
Can the application be configured to use an LDAP server? Describe the mechanisms used.
What management objects can be configured by attendants? Can all attendants manage these features?
Can the attendant application operate with other desktop applications from other sources such as Microsoft or IBM? Describe briefly the interoperability possibilities.
Monitoring application
Can the attendant application be equipped to visualize the status of a large number of telephones?
Describe the monitoring interface for the Attendants application.

Explain the meaning of the icons or symbols used in the display.
Describe any other display features integrated the attendants application for monitoring objects. Can the attendant manipulate the objects in the display?
Automated attendant
The proposed IP PBX system should be equipped with an automated attendant system that, under designated conditions, welcomes outside callers, and proposes (in an interactive manner) a way to reach a desired service or pre-defined party.
The interactive dialogue will be based upon DTMF; errors (incorrect entries) will be sent to an information message and returned to the earlier point in the menu.
If a DTMF entry is not received, the call will automatically overflow, after a programmable timed parameter, to a pre-determined number.
The requirements are as follows:
• Day menu:
o 2 Classes of level;
o 4 Classes of choice;
o 1 Error message;
o 1 Excuse message (i.e., "I'm sorry; our offices are closed...").
• Night menu:
o 1 Class level;
o 4 Classes of choice.
The switchover to the night or day message must take place automatically, reflecting the switchover of the IP PBX system.
The transfer of a call to an internal party or service must be supervised by the application.
• If the desired service or party is free or forwarded, the call will be transferred; if it is busy, the caller will receive a busy signal or will be directed toward the "Direct call to a busy terminal welcome message."
• When needed, the service will take the place of the attendant group for an hour; nevertheless, the traffic continues to be important, and it will be necessary to install a system that can handle six (6) simultaneous connections.
Tenderer will specify whether the proposed system is integrated or outside of the IP PBX system, and describe in detail the system capacity, as well as the system modularity.

7.20.6 Off-site mobility

What services can you provide for mobile workers to facilitate their communication accesses? The services should for example include mailbox access and company information.
• Can you explain the advantages provided for the mobile worker?
• Can you explain how the mobile worker gains access to the services?

Can you explain the mechanism used by the mobile worker to access the services?
Is a personal assistant feature available for the mobile worker? Describe how the feature can be personalized.
Describe the mechanism for the personal assistant for mobile workers.
Describe the services available for the remote worker from the mobile telephone.
Is it possible for a mobile worker to access the PBX call handling features such as multi-line or broker calls?
• Explain the mechanisms that enable the remote worker to access the PBX services.
• What PBX telephone features are available for the remote extension in communication mode? Describe the service access.
• What other specific remote extension features are present to benefit the service user?
Is your remote extension feature available for personal cellular devices?
Explain the requirements and provide examples of the remote extension feature for a selection of mobile telephones.
Does your offer include the possibility of a fixed-mobile convergence? Explain the benefits and outline the requirements.
Describe the fixed-mobile convergence features.
Describe the advantages of the fixed-mobile convergence features. Are there differences in the feature availability for different telephone providers? If so, provide details.
Explain the general method used to interface your centralized solution with typical GSM carriers. List the different GSM vendors and models with which the convergence feature is compliant. List certifications where possible.

7.20.7 On-Site mobility

What does your company offer to cover mobile communications in enterprise environment?
Can you provide an overview of your mobile communications offer for within the enterprise environment?
Can you provide an overview of your mobile communications offer for outside the enterprise environment?
What solutions are available to liberate employees from their desks?
Can you provide a solution that offers internal desk mobility?
Is there a possibility to maintain personal telephony configurations in different offices within the company?
Explain the architectural requirements for providing internal mobility:
• When and where can the internal mobility feature be made available?
• How does the user access the mobile desktop environment?

• How does he quit the environment?
• Are the personal telephone features modified during a mobile desktop change? How does he quit the environment?
• Are there any hardware limitations for the internal mobility offer? Describe the limitations;
• Can the internal mobility offer be applied to a dual IP subnet configuration?
• What languages are available for this solution?
Can an internal mobility feature be tailored to fit specific work contexts?
Mobility voice over wireless LAN
Provide an overview of your voice over WLAN offer.
What are the key benefits of your Voice over WLAN offer?
How does the wireless system manage simultaneous connections to thousands of points?
How is load balancing treated within the network?
What specific hardware can be used in a voice over WLAN network? Provide a descriptive list of the available switches and access points.
Is your offer compliant with current standards?
Describe the features and services present and available for the handsets in your voice over WLAN offer.
How is quality of service treated in the voice over WLAN offer?
How is call admission control treated in the voice over WLAN offer?
What security levels are provided by your voice over WLAN sets?
How is data treated in the VoWLAN network?
Explain the mechanism used to find the geographical location of the VLAN handset
Present a simple overview of the VoWLAN architecture showing the principle hardware.
Can you present example architectures to demonstrate different configurations and treatments? Describe for example: a single communication server use, multisite Call Admission Control, multi-site topology, direct RTP call treatment.
Can your VoWLAN offer support a mesh access point topology? Provide some examples.
Can your VoWLAN offer support access from a remote site?
What administrative tools are available to facilitate the configuration of the VoWLAN handsets? Describe what additional hardware or software is required.
DECT mobility
Describe the advantages of DECT telephony as a mobility solution within the enterprise.
The Tenderer will specify constraints and limitations of the central infrastructure due to the DECT wireless solution, if any.
List and briefly explain the components in the DECT wireless solution (stations and controllers).
What other requirements are necessary for the DECT installation?

Detail the flows and protocols between the stations and controllers and the DECT phones with an estimation of the throughput of these flows.
Explain how the central infrastructure allows the use of wireless devices. Specify the technologies (DECT and/or IP DECT).
What specific hardware is used for the DECT services?
• Is the hardware DECT specific?
• Provide a brief description of the hardware used to provide the DECT services;
• Provide a brief description of the hardware used to provide the DECT services.
What are the features of the interior base station in your offer? Specify the radio characteristics and physical dimensions.
What are the features of the exterior base station in your offer? Specify the radio characteristics and physical dimensions.
Can you reduce the number of base stations with an alternative hardware?
Can you provide short descriptions for the features provided by your wireless DECT telephony offer? Can the wireless DECT phones provide the following capabilities:
• Call transfer;
• Caller number/name display;
• Callback;
• Conferencing;
• Mute;
• DTMF;
• number sent;
• Volume control;
• Directory access;
• Short-dialing keys;
• Call diary (receive, lost, etc.);
• Possibility to go in/out a group line.
How is roaming treated in the private network if there is a change of node? Explain how this situation can be covered to avoid disconnection.
How is roaming treated in large configurations?
Explain the security mechanisms implemented in the DECT solution (encryption of air channel, mutual authentication of the radio infrastructure and devices, detection of rogue access points).
Describe the transmission characteristics of the DECT wireless devices during operation.

Is the DECT transmission limited to one type of base station? Describe how the coverage area is defined by the base stations.
How does the handset select the optimum transmission channel ?

7.20.8 DEVICES AND TELEPHONE TERMINALS

7.20.8.1 General

Tenderers will offer a range of IP terminal equipment as well as digital telephones, each capable of meeting one or more of a variety of needs. In the case of mixed systems the ergonomics and overall “look and feel” of the terminals should be similar. The Buyer will make the final decision on the types and quantities of terminal after the detailed revision of the proposal sent by the Tenderer. Tenderer must indicate the prices for each kind of terminal offered.

Wherever possible and as required by the client, localization features should be offered. Localization features can include the choice of display languages or localized language keyboards.

The terminals, including the lower-range, should be equipped with keys, which can be directly programmed by the user. These keys should allow the chaining of several functions (for example: callback code + outside number, etc.).

To solve a company's specific organizational problems or control issues at certain terminal locations, it may be necessary to lock certain keys on the terminal to freeze particular configurations (profiles).

7.20.8.2 IP telephone terminals

This IP terminal should be an open platform allowing the integration of corporate, external, hosted, or third party Web applications via XML/SOAP. It should provide a set of tools for customizing their communications to the specific day-to-day demands of work and to fit specific enterprise, group, and individual needs.

Telecommunication Institutions: The equipment, and the eventual technical solution as proposed must be approved by the relevant legal telecommunications instances. The proposal must indicate the type of approval references for the various parts, which constitute the proposed equipment. If these references cannot be given, the tender submitter must specify whether the equipment, which was part of the offer, was submitted for type approval to the relevant organization. In this case the following information must be specified in the proposition:

- The file reference for the application for type approval
- The reference of the sites that received installation authorization
- The forecast approval date

8 Pricing And Pricing Schedules

8.1 Invitation: Please note that this is a mere invitation to do business and under no circumstances whatsoever shall it be construed as an “offer” giving rise to any contractual obligations on the part of the CoT. The City of Tshwane shall not be bound to accept the quote submitted by the contractor and reserves the right to accept the whole or part of the said proposal. The CoT further reserves the right to negotiate and/or renegotiate, whichever is applicable, the terms and conditions and quantities of the said quote.

8.2 Total Cost Of Ownership [TCO]: A Price proposal is required to be prepared as part of the response. The CoT procurement initiatives are centred on the TCO approach and want vendors to take cognisance of this and assist the CoT in driving down the total cost by considering all the cost drivers making up the component cost.

8.3 Pricing Schedules: The cost proposal must be submitted in writing on the schedule within this document. A spreadsheet format will be made available electronically and bidders must complete (but not change) the schedule electronically. If the price on the electronic schedule differ from the hand written/typed schedule, then the price of the hand/typed written schedule will take precedence and the electronic schedule will be changed accordingly. The electronic schedule is required to assist the Tender Evaluation Team.

8.4 Inclusion of all costs: The Contractor shall be deemed to have satisfied himself before submitting his tender as to the correctness and sufficiency of the tender and to have taken account of all that is required for the full and proper execution of the contract and to have included in his rates and prices all costs related to the supplies. The prices quoted/tendered must include for handling, packing, loading, transport, delivery, off-loading, transit, shipping, checking, travel, accommodation, subsistence, installation, configuration, commissioning, insurance, administrative costs (such as documents and manuals required), execution, supervision, furnishing of tools required for assembly, extraordinary and/or any other cost.
In other words, the CoT will not entertain any claims for additional costs. Value Added Tax must be excluded in the price. Price must include for all requirements as stipulated in this document.The price shall be fixed and no escalation claims will be entertained with the exception that should the contract be extended the standard SCM practises wrt CPIX will apply. Acceptance of the contract will be in writing and the contract period will then commence.

8.5 Submission Of Quote*:* All costs incurred in the submission of the quote shall be for the account of the vendor, whether such quote is successful or not.

8.6 Quantities: CoT reserves the right to reduce or increase the quantities of items without any change in unit cost.

8.7 Delivery Penalty Clause: If supplier fails to deliver any or all of the goods within the period specified in the contract, CoT shall, without prejudice to its other remedies under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to 1% of the value of the delayed goods per week of delay until actual delivery up to a maximum deduction of 10 % of the contract sum. Once the maximum is reached, CoT may consider the termination of the contract. Notwithstanding the above, CoT may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, terminate this contract in whole or in part:

- if the supplier fails to deliver any or all the goods within the period specified in the contract or within any extension thereof granted by CoT;
- or if the supplier fails to perform any other obligation(s) under the contract.

8.8 Quote All Items: The bidder should quote/tender on all the items as listed in the attached Item Price List. No ommisions will be accepted as it will seriously compromise the evlaluation process as the total quoted price per Service Provider will then not be equitable to one another. Incomplete quotations not providing all item prices are grounds for summary dismissal with no recource from the SP to contest or later provide outstanding item prices.

Al prices must be set for the contract period with the exception of the annual VPIX price adjustment that has to be approved by Council. All prices must also be quoted using a set exchange rate of $1.00 = R8.00, thus ensuring that all pricing be evaluated on equal footing.

8.9 License Fees: All License Fees for all software deployed on this contract must be included in the contract price. This implies free full version upgrades for the contractual- and warranty period. All software bought as part of this contract, remains the property of the CoT. Should CoT decide not to renew license fees, CoT will be authorised to continue using the fully functional version at no additional cost. No annual license fees will be entertained as part of this tender.

8.10 Power/Other Cords: To be included in the price of the main switch/equipment.

9. Evaluation Criteria

Criteria Applicable	Guidelines	Points
Solution	Overall solution, Key Account Management Strategy, Quality, Implementation plan/strategy	30
Maintenance on Exisiting Infrastructure	Skills, CV's of support personnel proposed, Management Team and Structure, Disposal and buyout plan	20
Network Operations Centre	Security, availability, escalation strategy, proposed noc solution	20
Stock Availablity(Proof)	Audited report on the availability of stock (R10 million) and location(warehouse)	10
Training	Training strategy, workshops, etc.	10
Value Add Services	Internship, Mentorship programme	10

Administrative Conformity: The aim at this stage is to check that tenders comply with the essential requirements of the tender dossier. A tender is deemed to comply if it satisfies all the conditions, procedures and specifications in the tender dossier without departing from or attaching restrictions to them. If a tender does not comply with the tender dossier, it will be rejected immediately and may not subsequently be made to comply by correcting it or withdrawing the departure or restriction. An example of an Adminitstrative disqualification is for example if no or a non-valid tax certificate is submitted.

Technical Evaluation: After analysing the tenders deemed to comply in administrative terms, the evaluation committee will rule on the technical admissibility of each tender, classifying it as technically compliant or non-compliant.

Financial Evaluation: Tenders found to be administratively and technically compliant shall be checked for any arithmetical errors in computation and summation. Amounts corrected in this way will be binding on the tenderer. If the tendererdoes not accept them, his tender will be rejected. Errors will be corrected by the evaluation committee/team as follows:
- where there is a discrepancy between amounts in figures and in words, the amount in words will be the amount taken into account;
- except for lump-sum contracts, where there is a discrepancy between a unit price and the total amount derived from the multiplication of the unit price and the quantity, the unit price as quoted will be the price taken into account.

For comparative purposes all items must be priced. Should pricing not be provided on an item, a letter from the manufacturer claiming its discontinuance must be attached. Any proposal where a section is not completely priced, without the aforementioned documentation will be disqualified. Creative pricing, ie deviation of more than 20% on the average value of the comparative pricing in a section will be used as benchmark to the item prices. Higher than average item pricing will result in total disqualification of the vendors bid on the relevant section.

Clarification: To facilitate the examination and evaluation of tenders, the evaluation committee/team may ask each tenderer individually for clarification of his tender. The request for clarification and the response must be in writing, but no change in the price or substance of the tender may be sought, offered or permitted except as required to confirm the correction of arithmetical errors discovered during the evaluation of tenders.

Criteria

- Local content
- Certifications
- Cv's of engineers
- Experience – (The Service Provider must provide proof of its personnel's experience level on similar size networks as Council has deployed. Preferably in Local Government)

Technical Evaluation: After analysing the tenders deemed to comply in administrative terms, the evaluation committee will rule on the technical admissibility of each tender, classifying it as technically compliant or non-compliant.

10. Training

10.1 Training ICT personnel: Within the tender the successful contractor should provide on-site training for ICT personnel in order that they can operate the equipment supplied. A suitable venue will be provided by CoT, and the contractor will be responsible for the training facilitator, equipment needed and the necessary manuals.

10.2 Training CoT personnel: This item shall include equipment usage training. For example if new phones are deployed, then the contractor must train the personnel to use the new phones.

10.3 Training Learners: Skills transfer shall also be done to accommodate at least 5 learners during the one year contractual period.

11. General Conditions

11.1 Authorised Representative: The bidder must be a reputed manufacturer or his authorized representative of the product offered. In case of representative, the authority from the manufacturer/distributor must be submitted. The bids received without authority are liable to be rejected.

11.2 Language: The offers, all correspondence and documents related to the tender exchanged by the tenderer and the Contracting Authority must be written in the language of the procedure which is English.

11.3 Ethics: Any attempt of negotiation direct or indirect on the part of the tender with the authority to whom he has submitted the tender or authority who is competent finally to accept it after he has submitted his tender or any endeavour to secure any interest for an actual or prospective tenderer or to influence by any means the acceptance of a particular tender will render the tender liable to be excluded from consideration.

Any attempt by a candidate or tenderer to obtain confidential information, enter into unlawful agreements with competitors or influence the committee or the Contracting Authority during the process of examining, clarifying, evaluating and comparing tenders will lead to the rejection of his candidacy or tender and may result in administrative penalties.

When putting forward a candidacy or tender, the candidate or tenderer shall declare that he is affected by no potential conflict of interest and has no equivalent relation in that respect with other tenderers or parties involved in the project. Should such a situation arise during execution of the contract, the Contractor must immediately inform the Contracting Authority.

The Contractor must at all times act impartially and as a faithful adviser in accordance with the code of conduct of his profession. The Contractor shall refrain from making public statements about the project or services without the Contracting Authority's prior approval. The Contractor may not commit the Contracting Authority in any way without its prior written consent.

For the duration of the contract the Contractor and his staff shall respect human rights and undertake not to offend the political, cultural and religious mores of the beneficiary state.

11.4 Confidentiality: The information contained in this RFP document, or provided by management or staff of The City of Tshwane, is solely for the purpose of providing Vendors with information on which to submit their proposals. It is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged information and material. Any review, retransmission, dissemination or other use of, or taking of any action, in reliance upon this information by persons or entities other than the intended recipient, is prohibited. Recipients of this document shall respect the confidentiality of the information contained herein together with any other information obtained during the course of the RFP process.

The Contractor and his staff shall be obliged to maintain professional secrecy for the entire duration of the contract and after its completion. All information, reports and documents drawn up or received by the Contractor shall be confidential. The contractor shall not, save in so far as may be necessary for the purposes of the contract's execution, publish or disclose any particulars of the contract without the prior consent in writing from CoT. If any disagreement arises as to the necessity for any publication or disclosure for the purpose of the contract, the decision of CoT shall be final.

11.5 Laws and Regulations: The Contractor shall respect and abide by all laws and regulations in force in South Africa and the by-laws and regulations of CoT and shall ensure that his/her personnel, their dependants, and his/her local employees also respect and abide by all such laws and regulations. The Contractor shall indemnify CoT against any claims and proceedings arising from any infringement by the Contractor, his/her employees and their dependants of such laws and regulations.

The successful tenderer will be required to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and regulations as amended. Further information in

this regard may be obtained from the Mr D B Finaughty at Occupational Health and Safety, @ telephone number (012) 358-0069.

11.6 Extension Of Period Of Implementation: The Contractor may request an extension to the period of implementation if his implementation of the contract is delayed, or expected to be delayed, for any of the following reasons:
a) extra or additional supplies ordered by CoT
b) exceptional weather conditions which may affect installation of the supplies;
c) physical obstructions or conditions which may affect delivery of the supplies, which could not reasonably have been foreseen by a competent contractor;
d) failure of the CoT to fulfil its obligations under the contract;
e) any suspension of the delivery and/or installation of the supplies which is not due to the Contractor's default;
f) force majeure;
g) any other causes referred to in these General Conditions which are not due to the Contractor's default.

Within 15 days of realising that a delay might occur, the Contractor shall notify the Project Manager of his intention to make a request for extension of the period of implementation to which he considers himself entitled and, save where otherwise agreed between the Contractor and the Project Manager, within 30 days provide the Project Manager with comprehensive details so that the request can be examined.

The Project Manager will subit the written request for approval and within 30 days CoT shall, by written notice to the Contractor after due consultation with the nesessary authority and, where appropriate, the Contractor, grant such extension of the period of implementation as may be justified, either prospectively or retrospectively, or inform the Contractor that such extension was not granted.

11.7 Projects and or Variation Orders: **V**ariations may include additions, omissions, substitutions, changes in quality, quantity, form, character, kind, as well as drawings, designs or specifications where the supplies are to be specifically manufactured for the Contracting Authority, method of shipment or packing, place of delivery, and in timing of implementation of the supplies.

Variation Orders will be given in writing on an official letterhead of the CIO (Chief Information Officer). No variation shall be made orally. Prior to issuing an administrative order for a variation, the Project Manager shall notify the Contractor of the nature and form of that variation. As soon as possible, after receiving such notice, the Contractor shall submit to the Project Manager a proposal containing:
- a description of the tasks, if any, to be performed or the measures to be taken and an implementation programme;
- any necessary modifications to the implementation programme or to any of the Contractor's obligations under the contract;
- any adjustment to the contract price

Following the receipt of the Contractor's submission, the Project Manager shall, after due consultation with the Contracting Authority and, where appropriate, the Contractor, decide as soon as possible whether or not the variation should be carried out. If the Project Manager decides that the variation is to be carried out, he shall issue an administrative order stating that the variation is to be made at the prices and under the conditions given in the Contractor's submission.

11.8 Trademark: In certain instances, where a reference has been made to a specific make or source, process, trademark, patent or product type, the reference is made only to describe a type of product classification (and all of its equivalents) for which no universally approved industry standard, benchmark or other sufficiently detailed or intelligible description is available at the time of the issuance of the procurement notice. In any and all such instances, the tendering party and the Contracting Authority shall interpret such a description as inclusive of any equivalent (or better) and the Contracting Authority shall accept for evaluation and procurement purposes as "compatible" any specification which is equivalent or better, irrespective of the actual nomenclature used by the tendering party.

Further Information

The compulsory briefing session will be held on the XX May 2013 for further information, all the questions can be directed to the following email: cbxx@tshwane.gov.za. No telephonic queries will be entertained.

Memorandum of Agreement entered into by and between:

City of Tshwane Metropolitan Municipality

Herein represented by ….. in his capacity as Municipal Manager and duly authorised thereto in terms of a Council Resolution dated ……., a copy of which is attached hereto as Annexure "A".
(Hereinafter referred to as the City of Tshwane ("CoT")

and

……..

Herein represented by …….. in his/her capacity as……. ..... and duly authorised thereto in terms of a resolution dated ……., a copy of which is attached hereto as Annexure "B".
(Hereinafter referred to as The Contractor)

Service Level Agreement
CB.../2013 (Data And Voice Maintenance and Equipment)
Tshwane

SERVICE LEVEL AGREEMENT

1. Background

1.1 This document comprises the SLA with the successful contractor.

2. Commercial Details

2.1 The contractor will take overall responsibility of the network infrastructure:

- the day-to-day maintenance and support of the network including all types of networking equipment inclusive of Cisco, Alcatel, 3 Com etc. This shall include first line support and therefore include activities such as:
  - determining whether the fault is electrical related and escalation thereof
  - determining whether the fault is fiber related and escalation thereof
  - fault tracing equipment and reconfiguring thereof
  - providing reports on faulty equipment
  - replacing power supplies where applicable
  - realigning radio antennas
- The delivery, installation, configuration of network equipment related to Projects and or programs.

3. Onsite Resources And Support Hours

3.1 It is crucial that the contractor provide CoT with the best trained, qualified human resource base with service related experience directly applicable to the services and systems deployed in Council.

3.2 It must be noted that the staff must be available at all times to CoT and that the contractor is not allowed to utilize the staff for other purposes unless pre-approved. Should staff not be available, suitable pre-approved replacement staff must be provided.

3.3 The resource skills must be on site during the hours 7:30 to 16:00 (official CoT working hours).

3.4 **Standby**: At least one team must be on standby after hours and over weekends. A monthly roster must be provided with the name and contact detail of the persons on standby.

3.5 **Support for after hours, weekends and public holidays**: Such support will be based on the response times in accordance with the applicable SLA as well as on the core network.

3.6 All resources and project managers to report directly to the **[Deputy Director ICT Network Engineering, wrt Data Switching Infrastructure & Deputy Director**

Telecommunication Services, wrt Voice Switching Infrastructure] or appointed representative.

3.7 All personnel to adhere to the communication protocol. The communication protocol is as follows:

- Project managers\installation and maintenance teams\all other onsite resources of the contractor to interact with project managers of the CoT.
- All reports on SLA issues to be reported directly to the **[Deputy Director ICT Network Engineering, wrt Data Switching Infrastructure & Deputy Director Telecommunication Services, wrt Voice Switching Infrastructure]** or approved representative.
- All Departmental requests for equipment/services to be referred to the **[Deputy Director ICT Network Engineering, wrt Data Switching Infrastructure & Deputy Director Telecommunication Services, wrt Voice Switching Infrastructure]** or approved representative.

4. **Escalation Procedure**

4.1 If faults are not cleared or no response is received, the following person at Senior Management can be contacted to escalate the call:

Name: …….

Tel nr: …….

5. **Support**

The daily management of the systems and deployed infrastructure base is critical and must be done in such a way that no functions or functionality of the deployed infrastructure base is impacted. The contractor will provide on-going monitoring, installation and maintenance and support of CoT network Infrastructure.

6. **Advisory Service:**

The Contractor to provide an advisory service iro new development trends that have to be planned for. The Contractor to assist in alternative solutions when budget is not available for the suggested implementation.

7. **Additional Services**

- The Contractor to play a supporting role to CoT personnel including the service desk and third party contractors (UTP or PC Support contractors etc) when requested to do so.
- **Spares**: The Contractor will endeavor to keep adequate spares for the CoT network and will release spares when an official purchase order is received. The spares in question refer to emergency repairs.

8. **General:**

8.1 Normally an automated call is generated by the Service Desk System. However CoT will provide a call reference number for all maintenance/installation related services.

The Contractor need to acknowledge receipt of the call, and must also close the call after attending to it. In situations where no call nr is available, the contractor can log such call at the service desk for reference.

8.2 CoT project managers/coordinators will liaise with the Contractor's Project Manager(s) on all projects at least 1 week in advance of the project start date.

8.3 The Contractor to Liaise with the relevant Council personnel iro all insurance claims on the deployed old equipment.

8.4 The contractor must have insurance against lightning and surge damage for all new equipment deployed to site. New equipment damaged by lightning and/or surges must be replaced free of charge and the necessary steps must be taken to prevent such damage in future (for example installing a proper grounding system, by utilizing power surge plugs etc).

8.5 The Contractor must manage the account and any on-site resources in a professional manner in line with City of Tshwane corporate policy.

8.6 Change Control (When required): Proper change control must be adhered to and no changes can be made unless prior approval has been obtained. All changes and expansions must be managed in accordance with Council's existing Change Control processes and procedures in line with ITIL best practice. All new projects must be deployed adhering to these principles. Asset relocation must be done if an asset is moved via change control. Any expansion, ie where new equipment is deployed or configuration changes, requires that The Contractor must update all diagrams/drawings applicable to the environment.

9. **Meetings/Interaction:**

The Contractor must attend meetings, site scoping and high level meetings with relevant officials directly involved in this service in Council. The Contractor to hold and minute two weekly meetings with the relevant people in Tshwane to discuss any request and network related issues.

The Contractor to be involved in internal marketing as might be necessary from time-to-time.

10. **Reporting:**

Reports will be required from time to time and must be provided free of charge on for example emergency situations, major events, monthly maintenance reports etcetera.

It will be required of the successful contractor/vendor to provide monthly reports. Reporting to be relevant to service maintenance/management and projects/programs.

The following reporting is mandatory and must be given on a monthly basis:

- Status of all maintenance calls including quotes issued, orders received (with date and order number), date call completed etcetera
- Project Summary listing all projects and their respective status
- Any other reports required by CoT, and as listed in the contract.

11. **Confidentiality:**

The Contractor is not allowed to discuss the network with third parties or to link third parties with the CoT network. A Non-Disclosure Agreement will be entered into by both parties. The Contractor may not share any information about the operations of CoT with any parties outside this agreement unless CoT gave written consent.

12. Service Level Agreement

The table below outlines the details pertaining to the service required and the penalties related to non-conformance.

Service Class Definition					
Type	Definition	Mean Time to Respond [Severity]	Mean Time to Resolve	Service Window	Penalty
Maintenance	Major Business impact: Any service that is completely down and has a critical impact on business services. Includes core sites.	Immediate to 30 minutes [1]	Immediate to 3 hours	24 x 7 support	R 200-00 per hour for late completion to a maximum of R 5000-00 per incident.
	Moderate business impact. Any fault or outage that is causing COT or any of his external parties' degradation of performance.	Immediate to 1 hour [2]	Immediate to 8 hours	24 x 7 support	R 150-00 per hour for late completion to a maximum of R 5000-00 per incident.
	Minor business impact. Change requests. Low or no impact on business services.	Immediate to 8 hours [3]	Immediate to 24 hours	Normal Working Hours Monday To Friday 7:30-16:00	R 100-00 per hour for late completion to a maximum of R 5000-00 per incident.
	All other related maintenance activities as per flow chart [NORMAL MAINTENANCE RELATED PROCESSES TO BE DONE BY CONTRACTOR]	N/A	As indicated on the flow chart.	Normal Working Hours Monday To Friday 7:30-16:00	R 100-00 per hour for late completion to a maximum of R 5000-00 per activity.
Projects	All project related activities as per flow chart [NORMAL PROJECT RELATED PROCESSES TO BE DONE BY CONTRACTOR]	N/A	The individual activities and their associated time frames are listed on the flow chart. Penalties will apply to all of these activities.	Normal Working Hours Monday To Friday 7:30-16:00	0.05% of the project value per day of late completion to a maximum of R 10 000-00 per project.
Programmes	All programme related activities as per flow chart [NORMAL PROJECT RELATED PROCESSES TO BE DONE BY CONTRACTOR]	N/A	The individual activities and their associated time frames are listed on the flow chart. Penalties will apply to all of these activities.	Normal Working Hours Monday To Friday 7:30-16:00	0.05% of the programme value per day of late completion to a maximum of R 20 000-00 per programme.

Note: The contractor can negotiate the time frames of projects/programmes with CoT before the start of the project/programme to take the size into consideration – for example a six storey building will be easier to implement than a 20 storey building.

Each incident/project/call is managed and tracked throughout its service lifecycle by the Service Desk and measured; exceptions are: where calls are serviced outside of the contracted Service Level. These are to be reported on at month end, to identify failure to meet specific service level. Also note that projects/programs are measured under the SLA for projects.

Core Site List (please note the list will be amended to accommodate future sites):

- Centurion
- Sammy Marks
- Soshanguve
- HB Phillips
- CD Wet
- [Munitoria]
- Atteridgeville Mini Munitoria
- Mamelodi Mini Munitoria
- Iscor Club
- PDS
- Bosman Fire Station
- Rondalia
- Waltloo
- Akasia HQ
- Premos
- Capital Park
- BKS
- Noordvaal
- Saambou
- Sanlam Plaza
- Old Raadsal
- FPM
- Bosman 9
- Isivuno
- Temba CC

13. **Training**

13.1 Skills transfers will be done via work sessions and on-site training.

14. **Occupational Health And Safety Act**

14.1 The successful tenderer will be required to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and regulations as amended.

15. SLA Agreement

IN WITNESS WHEREOF, the CoT has executed this contract on this …….. day of

……. at …….

WITNESSES:

I. ……..

II. ……..

_____

CITY OF TSHWANE METROPOLITAN MUNICIPALITY

IN WITNESS WHEREOF, ……. has executed this contract on this …….. day of

……. at …….

WITNESSES:

III. ……..

IV. ……..

_____

The Contractor

HEALTH AND SAFETY SPECIFICATION

MINIMUM OCCUPATIONAL HEALTH & SAFETY REQUIREMENTS

I ..... in my capacity as .....

representing.....

(contractor)

hereby agree in terms of Section 37(2) of the Occupational Health and Safety Act 1993 (Act 85 of 1993) that I am an employer in own right and hereby take upon myself the duty to ensure that myself and my employees will adhere to the requirements as set out below and all other requirements as set out in the Occupational Health and Safety Act 1993 and its regulations.

1. INTRODUCTION

1.1. The Municipality requires a high standard of safe work performance from all employees and expects that the standard be maintained by the contractor within the Municipality's jurisdictional area or on its premises.

1.2. Irrespective of human considerations, the maintaining of these health and safety rules shall be the execution of the prescribed legal requirements. These rules are not to hinder the contractor in rendering services or indemnify the contractor from any legal responsibility to ensure healthy and safe work circumstances.

1.3. The Municipality shall assist the contractor in any practical considerations to accommodate the healthy and safe execution of work and therefore require co-operation in the execution of these safety rules

2. LOCK OUT PROCEDURE

2.1. When power or air driven machines or equipment, electrical apparatus or pipe lines are examined, repaired, adjusted, cleaned, lubricated or serviced in any other way than normal servicing, then all isolating switches, -levers, valves or appliances must be put in the "off" or "closed" position and locked.

2.2. Should more than one team work on a machine, then each person in control of a team, must put a separate lock on the switch, lever, valve or appliance.

3. CRANES, VEHICLES AND HOISTING

3.1. For each crane or hoisting equipment used, the contractor must submit a valid and recent test certificate or other form of the last examination of the machine or equipment, to the Municipality.

3.2. Only trained personnel with written permission and where determined by Law, with a valid driver's license, may be allowed to operate any electrical diesel or petrol driver

overhead crane, hydraulic or electrical hoisting equipment, self driven forklift, tractor or any other crane

or vehicle. No employee of the contractor may perform any overhead work or work on an overhead crane or hoisting equipment or work near cranes or crane rail, before:

- An agreement was concluded with the Municipality.
- Approval has been obtained from the Municipality to perform the work.
- All applicable danger – and warning symbolic signs are put into position, or exemption, if applied for, is in operation

4. MACHINE VALANCES, PROTECTION AND FENCING

4.1. No machine valances, protection or fencing may be removed from machines, manholes, etc without the written permission of Municipality if applicable exemption procedures were not appropriated.

5. SCAFFOLD, LADDERS, TOOLS AND EQUIPMENT

5.1. No equipment or appliance belonging to Municipality may be used without written permission from the Municipality.

5.2. Unless prior arranged, contractors must bring sufficient tools and equipment to the site to finish the contract, including offices and storerooms. The mentioned equipment remains the responsibility of the contractor with respect to loss, damage and theft.

6. EXCAVATIONS

6.1 Before any excavations commence, the contractor must obtain information with regard to all existing services. The Municipality does not guarantee the accurateness of the information supplied.

6.2 All excavations and obstructions in floor, tar and dirt surfaces must be fenced effectively and safeguarded between sundown and sunup with a sufficient amount of red/yellow warning lights and symbolic signs.

6.3 The surrounding area must be kept clean, safe and tidy during excavation. Excess material may not obstruct unnecessarily

6.4 If any property is in danger during excavation, it must be supported and the proposed support work must be submitted to the Department of Labour (OHS) and Municipality for approval.

6.5 Written permission must be obtained from Municipality to grant admittance to restricted areas as well as areas where dangerous or poisonous gases are present

6.6 That all excavations be done in accordance with the stipulations of the Occupational Health and Safety Act

7. FIRST AID

7.1 The contractor must provide and maintain a first aid box equipped according to legal requirement where more than (5) five persons are employed. The first aid box must be in the care of a person with a competency certificate from one of the following organizations

- SA Red Cross Association
- St John's Ambulance
- SA First Aid League; or
- A person or organization approved by the Chief inspector for this purpose

7.2 A visible notice must be put up on any work premises with the name of the person responsible for first aid. In an emergency the Municipality's Ambulance / Fire Department or emergency services may be contacted at (012) 310 6200.

8. FLAMMABLE LIQUIDS

8.1. The contractor shall be held responsible for the necessary precautionary fire prevention measures. No smoking signs must be put up where applicable. The contractor's employees must be informed of Municipality's fire prevention measures and evacuation procedures.

9. INCIDENT REPORTING

9.1. All incidents referred to in Section 24 of the Occupational Health and Safety Act and or other incidents shall be reported, by the contractor, to the Department of Labour, as well as to the Municipality and should such an incident take place outside normal working hours, on a Saturday, Sunday or Public holiday to Capital Park Power Management at tel no. 012-324 3495 or 012-339 9027 and Piet Delport Centre at 012-427 7111. The Municipality shall further be provided with a written report relating to any incident.

9.2. The Municipality will obtain an interest in the issue of any formal inquiry conducted in terms of the Occupational Health and Safety Act in any incident involving the contractor and/or his employees and/or his subcontractors.

9.3. The contractor undertakes to report to the Municipality anything deemed to be unhealthy and/or unsafe and that he undertakes to verse his employees and/or subcontractors in this regard

9.4. The contractor undertakes to immediately report all injuries on duty sustained by the employees of the contractor to the Municipal Contract manager.

10. LIAISON AND SUPERVISION

10.1. The contractor hereby undertakes to report on a regular basis, not exceeding a period of one (I) week in the instances of long term contracts, to the Municipal Contract Manager regarding any hazards or incidents that may be identified or encountered during the performance of the principal contract.

11. SERVICE INTERRUPTION

11.1 Should any work done by the contractor cause a possible interruption, written permission must be obtained from the Municipality, before such work commences. The contractor may not switch on or off any service without written permission from the Municipality.

12. LIQUOR, DRUGS, DANGEROUS WEAPONS AND FIREARMS

12.1. The contractor shall ensure that he and his employees comply with the official policy of the Municipality at all times.

13. GENERAL CONDITION

13.1. Notwithstanding anything to the contrary in this agreement, it is hereby specifically determined that the Contractor shall have acquainted himself and be conversant with the contents of all statutory provisions applicable to the health and safety of workers and other persons on the site including the execution of the work, and in particular the conditions contained in the Occupational Health and Safety Act, 1993 (Act 85/1993), and the regulations promulgated in terms thereof, and shall comply therewith meticulously and in all aspects and/or take care that it is complied with

14. CONTRACTOR IDENTIFICATION BOARD

14.1 The contractor shall provide on any work premises a temporary identification board at all worksites containing the following information:

- Company name
- On behalf of which division/department the work is being done
- The contact number and name of the person representing the contractor
- The contact number and name of the person representing Municipality

14.2 The specifications of the identification board shall be as follows:

- Size: 900mm x 900mm
- Material: The board must be constructed of aluminium or similar strength material.
- Letter size: Letters must be at least 70mm in height.

14.3 The identification board must be displayed in a conspicuous manner at the worksite of the contractor for the duration of the work performed